THIS ISSUE—Total Look at Electric Heat

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RSES Takes Flying Start Into '62

New President, Directors Huddle at Convention

By Frank J. Versagi

TORONTO, Ont., Can.—*"It will be done in '61* was the motto of the Ontario Mapleleaf chapter which has been our host at this convention. And, indeed, it was done.

"There's more to do in '62."

This, essentially, was the inaugural address of Carl F. Howenstine, newly-elected president of Refrigeration Service Engineers Society. In the midst of what was one of the most successful international conventions ever held by RSES, Howenstine, of Canton, Ohio, got right to work doing whatever he has in mind for 1962 by conducting a personal interview with each of the newly-elected directors of the society.

Due to the combined effects of a near-record attendance (almost 750 members and guests, excluding women), the contagious hospitality of the Canadians, the generally favorable and optimistic committee reports, the 24th RSES convention was highly praised by the attendees. Enthusiastic conventioneers sought out the NEWS to comment on the success of the convention.

H. T. McDermott, perennial secretary of RSES, stressed in his report to the convention that immediate past president Paul Darby "has concentrated on communications between members and officers."

Under Darby's leadership, directors and deputy directors

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C. A. Olsen Buys Fraser & Johnston Capital Stock

SAN FRANCISCO—The C. A. Olsen Mfg. Co., Elyria, Ohio, a wholly-owned subsidiary of Westinghouse Electric Corp., on Nov. 3 purchased all the outstanding capital stock of Fraser & Johnston Co. here, it was announced by Westinghouse.

The purchase was completed after creditors of Fraser & Johnston Co., representing the bulk of the unsecured claims against that company, had agreed to sell their claims to Olsen at 70% of face value.

The business of Fraser &

(Continued on Page 4, Col. 5)

Carrier Joins NEMA Room Unit Program

NEW YORK CITY — Carrier Air Conditioning Co. will participate in the National Electrical Manufacturers Assn. certification program for room air conditioners, it was announced jointly by the company and the association.

The company has also applied for membership in the room air conditioner section of NEMA, it was announced.

L. M. Larkin, chairman of the NEMA Room Air Conditioner Section, said the addition of Carrier to the certification program brings the present total number of manufacturers participating to 16, representing over 85% of room air conditioner sales.

"We are delighted to have Carrier join the section and its certification program," Larkin said. "We believe that they will strengthen all section activities and that their inclu-

(Continued on Page 4, Col. 5)

Electric Heat—Where Does It Stand? Will It Grow? Are Users Satisfied?

By George M. Hanning

DETROIT — Where does the electric heat industry stand today?

What are its prospects for the future?

How does the equipment manufacturer, the contractor, the utility, the user, the government look upon it?

In this issue, the NEWS has gathered together a vast fund of first hand information and opinion on this subject, particularly in reference to electrically heated homes and schools.

Leaf through these pages and you will find that:

- USERS are generally happy with their electric heat. It may not be the unconditional paradise that utilities paint it to be. On the other hand the difficulties of humidity, air stagnation, and dirty walls that its detractors mention apparently are not problems to them.
- COMPARED with the 28 million gas-fired homes in this country, residential electric heat is still an infant, struggling over the past 15 years to accumulate what gas heat now does every year—top the 1,000,000 installation mark. While some authorities claim that the 1,000,000th electrically heated home has been achieved, the NEWS has been unable to confirm this. (See editorial.)
- AIR CONDITIONING finds a natural market among electrically heated houses. For whole house air conditioning where ducted systems are used, the heat pump provides an appealing answer. Where non-ducted heating is used, one or two large air conditioners are

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NAHB To Hear ARI's Wilmington Story

CHICAGO — Air conditioning and heating will play prominent parts in the 18th annual exposition and convention of the National Association of Home Builders which will be held at McCormick Place here Dec. 3-7.

The success of the "Wilmington Residential Project," a joint promotion by builders, distributors, mortgage lenders, and the utility which resulted in central

(Continued on Back Page, Col. 1)

ARW Board Votes To Push Action on 'OEM for Resale'

CLEVELAND—In a board of directors meeting here, the Air Conditioning & Refrigeration Wholesalers association (ARW) once again pondered the "OEM for resale" problem, and made a unanimous decision to pursue vigorously a line of activity that can lead to the taking of legal action if conditions continue to warrant such action.

The board meeting was somewhat unusual in nature in that some 26 wholesalers in various parts of the country, not members of the board, were invited to join with the board in the meeting at their own expense, with 20 of those invited coming to the meeting.

As reported in the Sept. 4 issue of the NEWS, ARW had asked its members to consider lodging a formal complaint with

(Continued on Page 29, Col. 4)

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Hit 'Scissors and Glue Pot' Method

Need for Greater Care In Writing Specifications Stressed at Institute for Architects, Engineers

By C. Dale Mericle

MADISON, Wis. — Need for greater care in preparing construction contracts and specifications was emphasized throughout a two-day institute held at the University of Wisconsin here Oct. 19-20 by the College of Engineering in cooperation with the Construction Specifications Institute.

Most of the 100 in attendance were architect-engineers, but also present were nine general contractors and representatives of three contractor associations.

Had they been on hand, mechanical contractors would have received a certain wry satisfaction in hearing architect-engineers admit that specifications have too often been prepared by the "scissors and glue-pot" method, which can lead to such ludicrous situations as specifying an autoclave for a fire station.

The mere fact, however, that the institute was held and was well attended would indicate that at least some architect-engineers are quite aware of the problem and are attempting to improve matters.

During the two-day session various speakers discussed such topics as contract documents, legal principles, bidding procedures, bonding of bidders, and insurance.

"Gone are the days, in my opinion, of hazy plans and specifications," keynoted Robert G. Burkhardt, Chicago consulting engineer, indicating that today's buildings are too complex to permit slipshod planning.

Latest version of the Ameri-

(Continued on Page 2, Col. 2)

Big Deal for Business Communications

The huge house organ publishing field, representing thousands of businesses from coast to coast, continues to expand heartily. House organs today are on the march with larger budgets, higher circulations, and greater numbers than ever before.

Sometimes called "company publications," "house magazines," or even "industrial publications," these specialists now have an astounding combined circulation of 190,000,000, and show every indication of growing larger.

Fifteen years ago house organs did well to approach a combined total of 50,000,000 copies. Subsequently this vast private publishing field has grown in stature and prestige until it now ranks among the multi-million dollar industries of America.

Today there is scarcely a corporation of substantial size that does not have at least one or more private publications for employes, stockholders, customers, or the general public.

Secret of the current expanding house organ business lies in the basically long-range approach which governs this highly specialized field.

The successful house organ depends upon a continuing year-in and year-out "image" to make its influence felt. Current business conditions have little or no effect on its plans or program, in consequence.

In such a large field there are always changes, turnovers, drop-outs and re-evaluations. Nevertheless, today these publications

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Comfort Heating Expo Planned for Mar. 19-21

NEW YORK CITY — Second national Electric Comfort Heating Exposition will be held in the Hotel Sherman, Chicago, from March 19 to 21, National Electrical Manufacturers Association has announced.

Already 36 firms have reserved exhibit space totalling more square feet than was occupied by all exhibitors at the first show in March, 1960, according to Robert T. Kenworthy, exhibit director.

As at the first exposition held last year, a symposium will be conducted in connection with the show. The sponsor is the Electric Comfort Heating Equipment Section of the National Electrical Manufacturers Assn.

The symposium's theme will be "Sell Electric Comfort Heating Cooperatively."

QUESTION on contracts and specifications were aired at a panel session held as part of a two-day institute on the subject at the University of Wisconsin. Panelists were Glenn G. Frazier, Robert G. Burkhardt, Robert P. Jaffer, and R. Robert Lyden.

Stress Care In Writing Specs--

(Continued from Page 1)

can Institute of Architects' "General Conditions" form (dated January, 1961 but not available until recent weeks) was reviewed by Glenn G. Frazier, Urbana, Ill. architect.

"This is a standard form that it often overlooked, but it is one of the most important parts of your specifications," Frazier emphasized. "It's like the 'fine print' in insurance policies."

The AIA General Conditions form must be actually included in the specifications instead of merely being referred to, Frazier said; otherwise, "our lawyers tell us," it has no legal weight.

Using the actual form, which, incidentally, is copyrighted by AIA, instead of just referring to it also makes the specifications more specific, Frazier declared.

In addition to this form, supplementary "general conditions" for the specific job should be provided in the specifications, he said.

"I'd like to suggest we all make a resolution," Frazier concluded, "to re-read the latest edition of General Conditions every time before starting a project."

Consulting engineer Robert P. Jaffer of Tampa, Fla. discussed the General Conditions document as developed by the Consulting Engineers Council, but he stressed the point that "merely inserting standard documents into specifications and contracts is only one-third the job."

The other two-third consists of (1) carefully establishing the legal status of the contract, and (2) being sure that the specifications writer is thoroughly familiar with their application to the specific job, in Jaffer's opinion.

Legal Principles

Various legal principles applying to construction contracts were touched upon by R. Robert Lyden, chief of specifications for the 9th Naval District, Bureau of Yards and Docks, but he also went into government contracts.

He urged his listeners "to engage legal help before entering into a contract with any corporation or governmental agency," explaining that the legal requirements and possible complications of such contracts can be exceedingly important and complex.

Changes Should Be Documented

Changes made in the course of construction should be documented as they occur so they maye be enforcible at law, Lyden advised, suggesting also that "a simple camera can prove invaluable in the field" for recording such changes.

Other points made by Lyden included:

In contract re-negotiations requesting longer time to complete the job, support the claim for time extension with an estimate of man-hours required.

To achieve the "best materials and workmanship" specify either the methods to be used or the results expected.

On governmental work suspicion of sabotage or subversive activities should be reported immediately to the FBI.

In a panel question-and-answer session various legal matters were discussed, but there being no lawyer present, only "guesses" were offered as answers.

On one point raised, however, it was stated that on government work at all levels changes amounting to more than 15% or 20% of the original contract usually require the negotiating of another contract. "But get the advice of the agency's attorney," it was suggested.

Types of Insurance

In discussing insurance as applied to construction contracts, O. J. Rudser of Employers Mutuals of Wausau commented that there is a growing tendency for the general contractor to assume responsibility for insurance and to furnish certificates of such insurance to subcontractors.

Generally, he explained, three types of insurance are involved: (1) workmen's compensation, (2) other liabilities except for automobile operation, and (3) automobile operation.

Because there may be some overlapping of claims on the

(Continued on Page 4, Col. 1)

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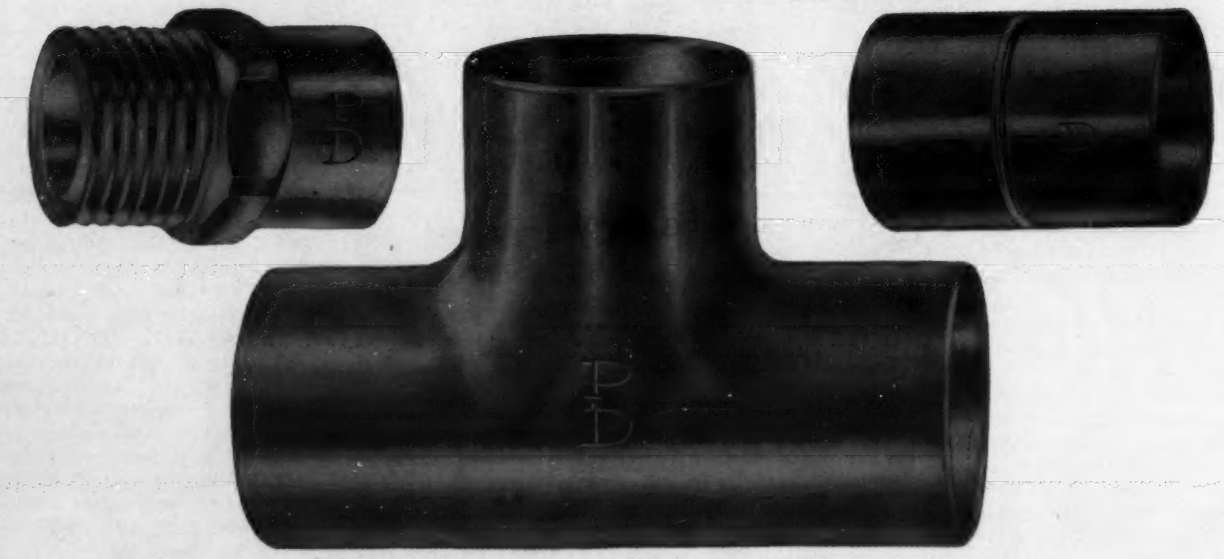

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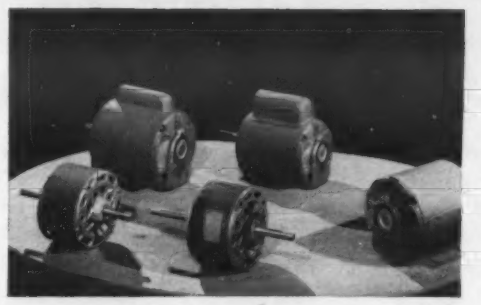

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Need for Care In Writing Specs--

(Continued from Page 2, Col. 5)

above three types of insurance, Rudser suggested that all the policies be written by the same insurance company.

Rudser, who manages his company's claim legal department, noted that there are increasing attempts to make the architect-engineer legally responsible for more and more things, and he pointed out that the A-E can be held responsible for negligence in design and/or supervision.

Bonding Becomes More Important

"The construction industry is a long way from being healthy. Thus, bonding is becoming more important," declared Warren H. Fuermann, Milwaukee branch manager of Fidelity and Deposit Co. of Maryland.

Reviewing what a bonding company looks for in a contractor, Fuermann warned, "If you aren't discounting your bills, you'd better get your house in order. The end is in sight."

In judging a contractor, a bonding company will consider many factors, Fuermann indicated:

Is the type of job in line with the contractor's past experience and performance?

Does the owner have the funds? ("Often loans expected by the owner to finance the job don't come through.")

How much other work does the contractor have in process?

Is the contractor making money on his other jobs?

Does the contractor have enough equipment? And what are his obligations on this equipment?

Are there unusual requirements in the contract?

Just what is the contractor's financial statement? ("We don't worry much about statements received from a certified public accountant following an audit, but otherwise we check into a contractor's receivables and payments due. We have a rule of thumb," Fuermann explained, "that requires the contractor to have 10% working capital, but some surety companies now are asking 15% or 20% because there have been too many failures in recent years.")

Checks with Contractor's Bank

The bonding company also wants to know just what the contractor's bank credit lines are, so the company checks with the contractor's bank, Fuermann pointed out to the group.

It was also implied by Fuermann that a contractor's financial reputation isn't much affected today by the fact that a lien is filed against him.

"There seems to be a tendency for suppliers to file liens immediately now and notify the bonding company. Liens seem to be a normal part of the construction business nowadays," he stated.

Need for good specifications and carefully written contracts was also stressed by the final speaker of the two-day institute—Karel Yasko, state architect for Wisconsin.

In preparing instructions for bidders, architect-engineers should use a dictionary "no matter how many times you've written them in the past," Yasko urged.

"Lawyers are finding good pickings in the construction industry these days," he added.

Time to allow for bidding should vary with the complexity of the building, Yasko said, noting that the minimum is usually three weeks, the average is four weeks, and that six weeks would be an extreme case.

For the contractor's benefit there should be a moratorium on addendum to bids amounting to two to five days before the bid date, he suggested.

Another suggestion made by Yasko was to prepare the specifications on paper of various colors for the different sections to make it easier to refer to them, especially in the field.

Anchor Mfg. Enters Electric Heat Field

MANCHESTER, N. H. — Anchor Mfg. Co., a 25-year-old manufacturer of electrical meter mountings and service equipment, has announced its entry into the electric heating equipment field.

The company, a division of Basic Products Corp., will produce lines of baseboard heaters; combination heater, light, and fan for ceiling installations; surface mounted radiant ceiling heaters; built-in radiant wall heaters; and nylon-jacketed radiant ceiling heating cables.

Carrier--

(Continued from Page 1, Col. 2)

sion in the certification program will prove mutually beneficial to the company and to NEMA efforts to insure public confidence."

Russell Gray, Carrier Air Conditioning president, said his company's move was based on several months of careful study including consultation with distributors and dealers.

"We consider the certification program an excellent one," Gray said. "We think it offers a real opportunity to upgrade room air conditioner standards. We will do everything we can to contribute to the effectiveness of the section and the program."

He said all Carrier room air conditioner production for the 1962 selling season will be NEMA-certified.

C. A. Olsen--

(Continued from Page 1, Col. 2)

Johnston Co. will be continued at its present location under new management.

According to a letter sent to its customers by Fraser & Johnston, G. H. Cardiff has been named vice president and general manager. He had been chief engineer.

Cardiff said, "I will have immediate supervision and control of Fraser & Johnston's day-to-day operations. I will continue to have the able assistance of Roger F. Chesebro as manager of manufacturing and E. A. 'Alec' Easton as sales manager."

Fraser & Johnston Co. will continue with its present product line under the same trade names, according to Cardiff.

The company has been a producer of heating equipment for a number of years and also of air conditioning equipment for the last few years.

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What Users Say About Electric Resistance Heat

Most Are Happy with It, NEWS Finds, But Man In Indianapolis Recites Woes

By John O. Sweet

DETROIT—The manufacturers, sellers, and other promoters of electric heating equipment proclaim, naturally, that "You can't beat electric heat."

Do users of this equipment agree?

To get a sampling of opinion on this point, NEWS reporters talked to users in various parts of the country. The majority had kind words for electric heat.

On the other hand, an Indianapolis-area man, who typified dissenters, has had so many troubles with electric heat, he told the NEWS, that he's having a gas line installed right now. And he's so upset by all this that he's ready to file a law suit.

But a lady in Nashville testified that she is very happy with electric heat. So did a woman in Chattanooga, and one in Indianapolis.

"I just love it!" enthused a housewife in the all-electric 380-unit family Capehart Housing Project for officers of Selfridge Field Air Force Base, Mt. Clemens, Mich.

This was a typical comment heard here where she and others singled out thermostatic control for each room as the thing they like most about their baseboard heating. Particularly good for those who have babies or small children, they remarked. They like being able to keep the temperature at one level in their own room at night but higher in the children's room so the youngsters won't get chilled if they kick off the covers.

A couple of the residents indicated some trouble had developed earlier with a heating unit or two in their homes and, they understood, in other project homes, too.

A source at the base explained that the power supply was attached to the heating units by a compression connection. He said trouble was experienced with the wires coming loose from normal household vibrations. This proved to be a chronic problem, which was solved by soldering the connections, it was pointed out.

Critics of electric heat allege that it has several drawbacks. They claim these include air stagnation (smoke, odors), excessive humidity, lack of air movement causing a feeling of coolness, convection streaking of walls, and high operating costs.

Stagnant Air? Odors? No Problem To Housewife

Few of the persons questioned by the NEWS indicated any particular trouble had been experienced with these things. Some of the women said that if the air in their home began to get "thick," they turned on exhaust fans and this cleared up the air nicely. One observed that stagnation might be a problem without the fans.

Another noted that she likes to air out the house every day, as a matter of course, by opening doors and windows. And she uses the kitchen fan, too, when necessary.

In view of the fact that a chief advantage of electric heat is cleanliness, it was interesting that a few complaints were voiced of dust collecting on the convector face. Although some feel that the quantity of dust in a home is less with electric heat, most say that the frequency of dusting is about the same as with other types of heat.

One woman (with baseboard heat) likes the fact that there are no filters to be changed. Another says that although some dusting still has to be done, it's not nearly as dusty as heat "where you have to have a blower."

One of the Capehart-project residents commented that if she were buying a home of her own, she would be leery of having electric heat unless she could be sure auxiliary power was available in case the regular power supply failed. She apparently was unaware that most kinds of heat require electrical power to operate.

Power Outage Brings No Discomfort

Incidentally, at the Franklin (Indiana) Home for the Methodists, where all the private homes are electrically heated, the power went off last winter for 10½ hours. Every one of the owners interviewed by the NEWS said the houses remained comfortable for those 10½ hours.

One man at the Home stated that the temperature in his house during this period dropped from 72°F to 65°. Good insulation is the reason, of course, for this good heat retention. It is also the reason the house can be cooled with only 1 ton of air conditioning.

Nevertheless, it isn't always easy to "sell" the need for proper insulation. A Chattanooga contractor says he has trouble occasionally convincing some "hard nose" prospect that he must insulate his house be-

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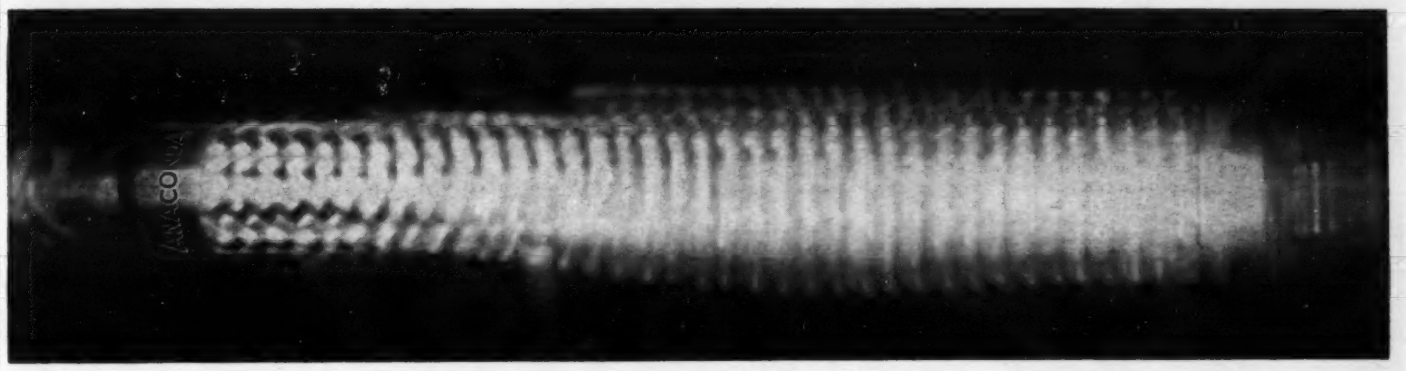

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Widow Finds Electric Heat 'Carefree', Nashville Lady Likes Even Temperature

(Continued from preceding page)

fore adding electric heating.

If the customer insists on electric heating without putting in the required insulation, he finds himself faced with exorbitant bills and soon has the electric heat removed, this contractor indicated.

Among electric heat enthusiasts is an elderly Indianapolis widow who owns a 90-year-old house. Her electric heating equipment replaces a coal furnace which was hand fired. She had heard about electric heat and insisted on having it because of its "carefreeness" even though it cost her $2,500, including proper insulation.

This lady formerly paid $300 a year for coal heat. Her bill for electric heat runs between $220 and $250 a year.

Electric heat is also heartily endorsed by another Indianapolis-area lady, Mrs. Charles Brunette. She has 1,764 sq ft of space plus basement.

The electric heating is submetered, and she has been able to determine that it costs her from $178 to $210 a year. The latter was the bill for the coldest year. She figures that adding some electric heat in the basement adds about $10 a year. She reported no problem with humidity control. A 1-ton air conditioner cools the entire house.

Now talk to still another Indianapolis-area resident, Salvatore Lauricia, and you get the opposite kind of story. Lauricia, who has a 1,500-sq ft house and unheated two-car garage, listed these unhappy experiences with electric heat:

He has had bills as high as $90 a month; his children have been scorched by hot wires; the house is never warm enough, although it does reach as high as 70° sometimes.

This man claims he has been unable to get anyone from the utility, the builder, or the contractor to do anything about this situation. He is the first owner and in winter, he says, the frost on the glass door of the house reminds you of the inside of a refrigerator.

Lauricia admits that he knows some very-well-satisfied electric heat customers, but he is not one of them and will knock electric heat every chance he gets. Meanwhile, he's putting in a gas line.

But chat with Mrs. Robert Ash and a Mrs. Nickens in Nashville or a Mrs. Campbell in Chattanooga, and you hear more praises for electric heat.

All have a central air conditioner with blast coils and like it very much. Mrs. Campbell has had no troubles on service, no problems with smoke or odors.

Moves Up From Wall Heaters To Air Conditioning

Mrs. Ash's system was installed about a year ago. For the 12 previous years, she had had wall heaters in each room with room air conditioners at front and back of the house. The house has about 2,400 sq ft of space including three bedrooms and den.

Originally Mrs. Ash came from Kentucky where she used coal. Compared with coal, electricity seems to her unbelievably clean.

The central air conditioning (4-ton cooling unit with duct heater), has ducts running through crawl space. Mrs. Ash is very happy with the new unit as it enables her to close interior doors and still maintain an even heat throughout the house. With room coolers and wall heaters, she had to keep interior doors open or some rooms would get too hot.

She has an exhaust fan in the kitchen but none in the bathroom. She said that neither with wall heaters nor with central air conditioning has she had any problems with smoke, odors, or humidity.

Mrs. Ash says her electric bills run from $10 in summer to $50 in winter. Winter average is $40 to $42 a month. The $50 figure was reached only once—before she learned how to regulate the new heating system.

The Nickenses have a large house and don't shut off any of it. Even so, the highest monthly heating bill they have had was $60. Mrs. Nickens believes that electric heat is cleaner than other types.

Although Mrs. Nickens can hear the heating unit turn on, she says it makes no more noise than an automatic stoker. She has the dealer who sold her the system come out to check it in spring and fall when changing over from heating to cooling and vice versa. He changes the filters at that time.

The NEWS also got the reactions of some commercial users of electric heat in the Nashville and Chattanooga areas.

One of these is John Dail, manager of Budlock Refrigeration Supply Co., Nashville. A central air conditioning system with electrical resistance heat serves the firm's new wholesaling building there. The system was installed last March so Dail doesn't have a full season of operation, but he has used it a few times.

Dail installed electric heat out of curiosity. He had previously

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EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.
AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

been located in Memphis. When he was moved to the new building in Nashville, he asked that it be heated electrically as long as the cost was competitive.

This user has no complaints so far on operation of the system, and has had no service troubles. His only fear is that not enough capacity was installed. He feels, however, that this is no problem since additional resistance heaters can be added easily and economically.

Dail does not feel that the store is any cleaner for having electric heat. But, he says, most of the dirt is brought in from the outside with customer and shipping traffic, so it's no reflection on the type of heating.

The NEWS talked, too, with Robert A. Elmore, manager of Lake Chickamauga Resort, Chattanooga.

This resort includes an air conditioned restaurant with blast heater coils; a motel with room unit heat pumps and resistance heat; a "Boatell" with wall heaters in rental cabins on the second deck; cottages with wall heaters and air conditioners; and an "Aqua-Dine" swimming pool under a plastic bubble with resistance heat in blower units plus infrared heaters.

Elmore has found electric heat to be clean, economical, and does the job he expects. He has not attempted to break down his heating costs from the total electric bill, so he has no idea what it is actually costing him. He says, however, that he is planning more motel units and they will be electrically heated, too, indicating his confidence in this type of heating.

Engineer Unhappy With Infrared

Elmore's engineer, however, doesn't feel so happy about the infrared heaters. He thinks they were too expensive for the job they were doing—keeping the cement area around the pool warm. He thinks the same job can be done more economically by placing rubber mats around the pool and circulating convection heat from the blowers throughout the bubble.

Electric heat is being used, also, in the new Hamilton County-Chattanooga Public Health Center. Opened last spring, this center is air conditioned with 15 separate air handling units with hot and cold water coils, plus additional resistance heaters in corridor ceilings and stairwell walls. A resistance heating coil has also been installed in the makeup air unit.

According to Dr. Arthur Von Werssowetz, assistant director of the center, the system has performed very satisfactorily. There is no transfer of odors throughout the building, no humidity problems. No service had been required so far. The heating and cooling bill was estimated at $3,350 a year.

One women at the Capehart project reported a "feeling of stuffiness" when she first moved into her house "but we got used to it and then summer came on." She also said that in the winter she and her family felt a "very definite dryness . . . I wish I could put a pan of water on the ledge of the heater."

She said her family noticed this dryness particularly when awakening in the morning. "I even used a vaporizer once to get some steam in a room."

She noted, however, that the family had come to Michigan from England and Germany where dryness is not a problem. When you move, she commented, you notice the difference in climate. So you have to get used to the change and to a different heating system.

'Air Gets Dry, But Not So It Bothers You'

Another woman commented that "It gets pretty dry, but not so it bothers you." She added that she has found her electric heating "very adequate," that at no time during the winter was she cold in the house "and we like it warm. I haven't had to turn the thermostat all the way up yet."

Most of the project residents do not keep rooms closed.

All of these interviewed said the electric heat did not streak their walls. One said some in the project had remarked about this but she hadn't noticed it herself . . . "maybe they turn up their heat higher than I do."

While "very satisfied" with electric baseboard heat, one woman wondered if the unit under the front-room window couldn't have been put along an inside wall. The reason: she is partial to floor-length drapes and likes to have plants by the window.

She indicated she'd be a little nervous if she had drapes of flammable material hanging down over the heating unit. She said she'd heard that some people in the project had had troubles with drapes being scorched. She felt that it would be necessary to have real sheer drapes that would "blow out" to avoid this problem and still have floor-length drapes.

As for the plants, she's afraid heat from baseboard might kill them if set by the window.

Another of the project residents remarked that she likes the baseboard design better than floor or wall registers. It doesn't detract from the room and doesn't interfere with curtain hanging, she said.

'Long Drapes Pose Problem With Baseboard Radiation'

Another thinks electric heat is "very good," but she's "not too wild about baseboard" because of the "long-drape problem" and because "you can kind of hide it with the furniture" but have to be careful not to get the furniture too close to it."

Several persons interviewed mentioned the monthly cost factor without being questioned about it.

Asked how she liked her electric heat, one resident declared: "I just love it!" Then she added: "Of course, I have no idea how much it costs." (The base pays the utility bills for the project.)

Another commented: "I like it but I'm glad I'm not paying the bill for it."

Still another said that if she were buying her own home, she would want to check the cost factor first before specifying electric heat. She said she would want electric heat if she thought it was inexpensive.

But one project housewife said she thought the low-maintenance factor of electric heat was important since it cost the taxpayers money every time service was needed or fuel deliveries were made. She indicated that she felt the government was trying to minimize such costs by using electric heat.

Electric power for the project is provided by Detroit Edison Co. through the existing Selfridge Field substation. Selfridge buys its electricity from the utility in bulk, so the cost is less than it would be to a private customer.

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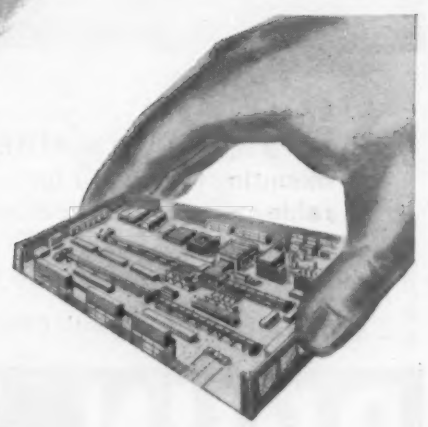

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TVA--Heartland of Electric Heat

How TVA, Utilities, Contractors Work Together To Sell One of Every Three Electric Homes In U. S.

By George M. Hanning

CHATTANOOGA, Tenn.—In the service area of the Tennessee Valley Authority, embracing an 80,000 sq mi territory spread over parts of seven southern states, lies the greatest concentration of electrically heated homes in the United States.

Their number stood at 308,375 (including an estimated 15,000 heat pumps) as of Oct. 1, TVA officials estimate. Depending on whose statistics you wish to believe, this total amounts to 30 to 40% of all residential electric heating in the United States—the more conservative the total, the higher the percentage.

Blessed with a low residential electric rate that now averages less than 1 cent per kwh, and making efforts to drive the rate still lower, TVA officials predict total installations will double by 1970 to more than 600,000.

According to George Munger, chief of TVA's Electrical Demonstration Branch, 23% of the 1,243,000 electrically wired homes in the TVA service area were heated by wire as of last Jan. 1.

In Chattanooga, self-styled electrical center of the nation, that saturation has reached 53%. In Nashville, saturation is 41%. In Knoxville it is 37.5%. Of TVA's 101 municipal power distributors, 12 have saturations greater than 40%.

This record gives credence to statements by TVA and local utility officials that electric heat has become the accepted way of heating here. However, it is not so much so that they are not concerned about gas competition.

Electric heat got its start in the Tennessee Valley back in 1933. At that time, electric heat was placed in the temporary barracks of construction workers laboring on the Norris Dam not far north of Knoxville.

When power became available, the first residential installations were made in Knoxville. To make these first sales, the power distributor had to guarantee the electric bills. But soon satisfied users turned up new prospects who bought without guarantees.

Progress was slow during the depression and war years. By 1946, there were only 4,000 electrically heated homes in TVA area. But with the war over, distributors could turn their attention to broadening their markets for electricity. By Jan. 1, 1950, they had acquired a total of 32,703 electrically heated homes on their lines.

Annual sales and the cumulative totals of electrically heated homes in TVA territory since then are graphically shown in the charts on next page.

The figures shown in this chart represent all forms of electric heat, including heat pumps. While no accurate figures are available on the number of heat pump installations, Buford Martin of TVA's Electrical Demonstration Branch estimates that they now total about 15,000. However, even heat pump installations here require supplementary resistance heat.

Push Is On Heat Pumps

Their numbers are growing as both TVA and utility officials look more kindly upon them and now put more strenuous efforts into promoting their sale.

Thus the bulk of the installations represent resistance or radiant heat, particularly in the form of wall heaters and ceiling cable.

A study of the growth figures for the past 10 years shows no great surge toward electric heating, though there is evidence of a gradual rising in annual sales levels.

And Still Growing

As of Jan. 1, 1961, the Tennessee Valley Authority reported the following number of electrically heated homes in the areas of the states it serves.

Tennessee	223,000
Alabama	32,000
Kentucky	13,000
Georgia	12,000
Mississippi	8,000
Virginia	2,000
North Carolina	1,000

Munger explained the somewhat sawtoothed effect of the sales curve as reflecting the variations in housing starts from year to year.

He noted, too, that the 16,000 installations recorded for the first nine months of 1961 do not necessarily indicate a slump this year. A high volume of installations are usually reported in the final quarter of the year, he said.

Commercial, Industrial Market Big, Too

While TVA and its power distributors know pretty well how many electrically heated homes they have on their lines, they have no way of telling how many commercial or industrial customers are heating electrically. Large consumption of kilowatts does not necessarily indicate electric heating, as it does in a home.

However, Munger noted that commercial and industrial use of electric heating, both resistance and heat pump, has not lagged behind the residential field.

He can count 41 all-electric schools in TVA area with six others currently under construction. Nineteen public housing projects and four military housing projects of 2,620 units (480 with heat pumps) use electric heat.

Motels, restaurants, complete resorts, hospitals, medical centers, and industrial plants large and small, employ assorted varieties of electric heat—convection units, infrared lamps, blast coils, baseboard, wall units, and cable heat, to do a variety of jobs. Even farmers are putting electrical heating in the homes and barns.

For a closer view of the elec-

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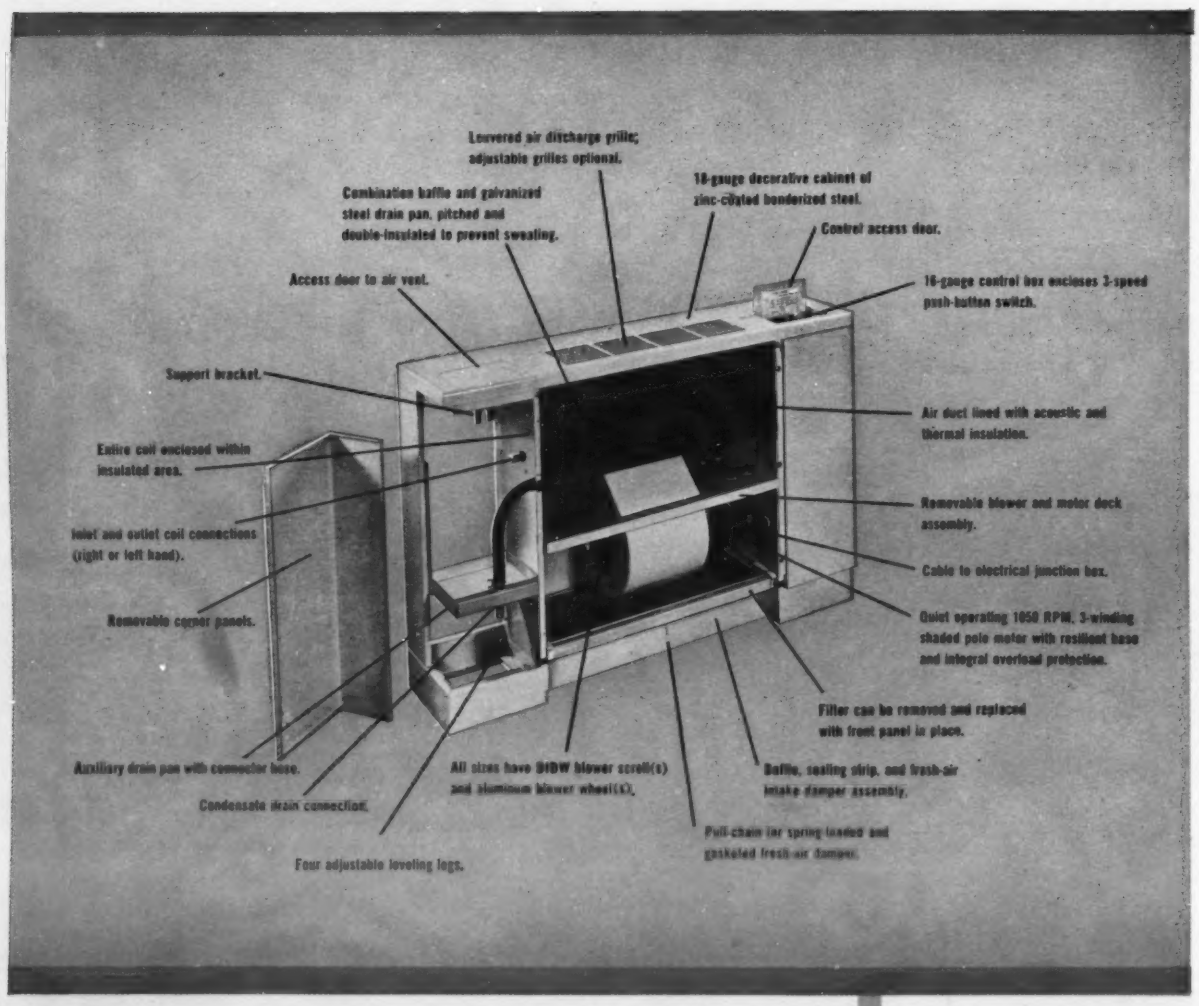
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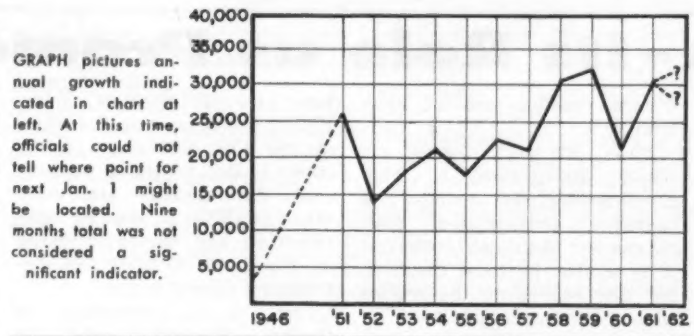
Residential Customers Using Electric Heating In TVA Area*

Date:	Cumulative Total	Annual Installations
Jan. 1, 1950	32,703	
		26,125
Jan. 1, 1951	58,828	
		14,394
Jan. 1, 1952	73,222	
		18,559
Jan. 1, 1953	91,781	
		21,437
Jan. 1, 1954	113,218	
		18,355
Jan. 1, 1955	131,573	
		23,572
Jan. 1, 1956	155,145	
		21,855
Jan. 1, 1957	177,000	
		30,141
Jan. 1, 1958	207,141	
		32,366
Jan. 1, 1959	239,507†	
		21,742
Jan. 1, 1960	261,249†	
		30,251◇
Jan. 1, 1961	291,500†	
		16,875
Oct. 1, 1961	308,375†	

*Including heat pumps of which there are now an estimated 15,000.

†Excluding Memphis, Memphis is not considered a significant factor in totals of 1958 and earlier.



GRAPH pictures annual growth indicated in chart at left. At this time, officials could not tell where point for next Jan. 1 might be located. Nine months total was not considered a significant indicator.

tric heat picture in TVA-land, let's go to TVA's two largest and most successful distributors —Nashville Electric Service and the Electric Power Board of Chattanooga, where a majority of homes are electrically heated.

Nashville Electric Service, which covers most of Davidson County, has 114,000 homes on its lines. Of these, 46,600 are heated by resistance heat methods. Another 900 homes are equipped with heat pumps and supplemental resistance heat.

Electric Power Board of Chattanooga, which covers most of Hamilton County, has 75,000 residential customers. As of last Jan. 1, 37,524 had resistance heat and 452 had heat pumps.

Tale of Two Cities

During the first six months of this year, EPB added 1,125 new electrically heated homes and converted 171 older homes to electric heat. Utility claims that nine out of 10 homes constructed around Chattanooga are all-electric. This has been the case for years, it added.

In Nashville, conversions run around 400 to 500 units a year, according to E. E. Parks, manager of the heating and light department of NES. All 17 homes in the Nashville Parade of Homes this year are electrically heated. This annual promotion by builders has been 100% electric for the past four years, Parks added.

In both cities, the utilities are recognized as the major force in selling electric heat. In Nashville particularly, contractors freely admit that they do not have to sell it. Customers are already aware of its advantages and specify it if they want it. Even contractors whose primary business is in gas-fired equipment, stand ready to install electric heat if the customer insists. This happens, apparently.

In both cities, the predominant type of resistance heat is the wall heater. Floor furnaces are also popular in Chattanooga. Ceiling cable comes in a poor third, with ducted heat and baseboard far behind.

It was interesting to note that baseboard heat was considered by a number of contractors to be the best form of electric heat. However, they said that it is relatively new to the TVA area and has not yet caught on with the public.

In both cities, resistance type heat was installed largely by electrical contractors. Ducted type heat, including heat pumps, was left to the air conditioning and heating contractor. Electrical contractors considered resistance heating as merely an extension of electrical wiring.

Air conditioning contractors in Nashville preferred to stick to ducted heating. but were willing and able to install resistance heating if the customer wanted it. The contractors interviewed by the NEWS considered electrical heating as part of their business and did not shy away from it. They saw no particular problems in it.

In Chattanooga, however, a utility official complained the air conditioning and heating contractors were not interested in electric heating unless there was a pipe attached to it. Electrical contractors were responsible for resistance heating installations there.

One electrical contractor, Lawson Electric Co., who claimed a large share of the business, said he worked closely with air conditioning contractors, putting in supplementary resistance heating and supplying custom made control panels for them on subcontract. If he got a job where air conditioning was called for, he subcontracted the ducted work to an air conditioning contractor.

In both cities, the utility has staff men who prepare heat loss calculations free of charge for contractors. These calculations are for the purpose of determining what number of kw will be needed to do a proper heating job.

From there on, however, it is up to the contractor to sell the customer on a particular type

(Continued on next page)

Billing Data (annual) Based on 3500 Degree Days

		Use Domestic	Heating Electric	Total
Small House	—1,000 sq ft	7,200 kwh	11,000 kwh	18,000 kwh
Medium House	—1,500 sq ft	9,000 kwh	15,000 kwh	24,000 kwh
Large House	—2,000 sq ft	12,000 kwh	22,000 kwh	34,000 kwh

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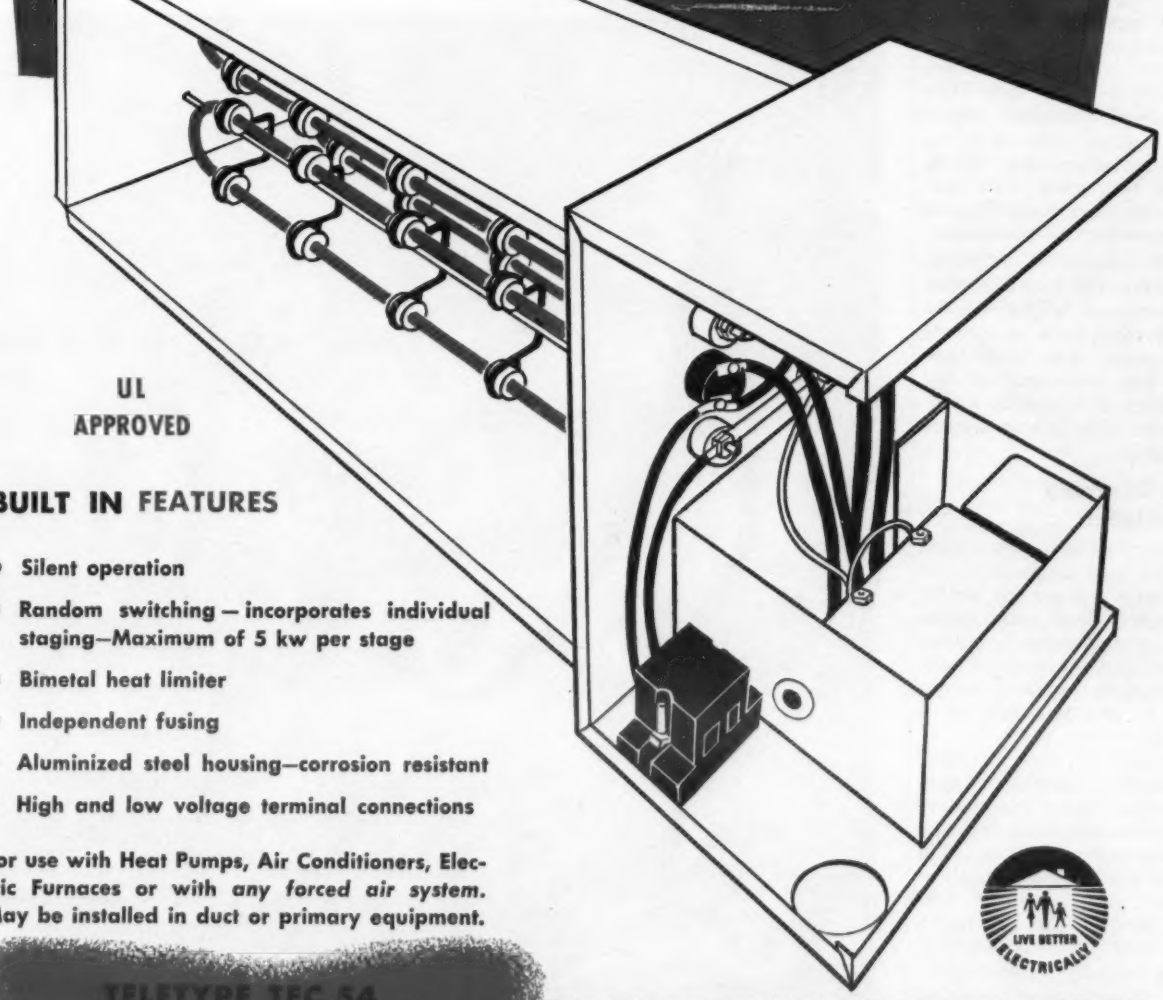

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(Continued from preceding page)

or brand of heating and to determine location of equipment and layout of the system.

In Nashville, at least, the Federal Housing Administration demands a letter from the utility stating its recommendations on the number of kw required before it will approve a loan.

The utility carefully refrains from recommending any type of electric heating, or brand of equipment, Parks said. Only once, a number of years ago, did the utility caution against using a particular brand of equipment on the grounds that this particular unit would not perform as claimed.

In both cities, utility officials look upon the heat pump with supplementary blast coil heaters as the preferred method of whole house cooling and heating. A prospect would have to have a pretty good reason not to select a heat pump, Parks claimed.

Little Problem with Service

In both cities, even with their large number of installations, there seems to be little problem on service. "No more trouble on electric heat than on an electric range," according to Fritz Reams, assistant service manager for NES.

Biggest problem appears to be that owners of fan-type heaters do not keep them clean. Motors will overheat and burn out. Controls sometimes fail.

Also, motors that are intended for intermitten operation will fail when run continuously, as sometimes happens when equipment is undersized.

Stansell Electric Co., in Nashville, which performs authorized service for most major brands, keeps one man busy on electric heater service—and sometimes two. At the beginning of the season, they will handle about 120 to 150 calls in one month. That is peak.

Builders Educated To Insulation

Sufficient insulation in homes for electric heat appeared to be no problem to either the utility or contractors. Both claimed the builders have to come to accept the idea of putting in 6-4-2 batt type insulation into their homes and do it pretty much as a matter of course.

For conversion jobs in older homes, heating contractors generally recommended that owner get his house insulated first and sometimes worked with particular insulation contractors. However, only one Nashville contractor handled the insulation work himself, although another said that he was considering it.

While electric heat may be the accepted method of heating in TVA territory, it was still news when T. R. Hyde of Copperhill, Tenn., added on to his Gold Medallion home an electrically heated dog house!

The dog house, located at the front of the house beside the carport, is equipped with a 1,320-watt, thermostatically controlled wall heater. There is also running water for "Teeny"—half Chihuahua and half Manchester.

TVA—Its Role as Promoter

The Tennessee Valley Authority is a producer and wholesaler of electrical power. It does not sell directly to the consumer except for bulk sales to large industrial concerns and Federal projects. It sells its power to 125 locally owned and operated municipal electric systems and rural electric cooperatives.

Under the Congressional authority that created it, TVA was charged with the disposition of surplus power in such a way as to promote the widest possible use of electricity.

Thus it works with its power distributors to help them develop new business and prepares promotional campaigns for their use. However, it is up to the local distributor whether or not he wishes to use this assistance.

For instance, TVA is currently offering a "Pleasant Condition" promotion to encourage a long term program to get more heat pumps and central air conditioning systems on distributors' lines. (The promotion was described in the Oct. 30 issue of the NEWS.) The program is a recent development and only nine of TVA's smaller distributors are currently using it. However, 80% of the distributors have expressed interest in it, according to George Munger, chief of TVA's Electrical Demonstration Branch.

Another example, TVA has authorized a new low "Norris Centennial" rate which would further reduce the cost of electrical heating. But only three or four distributors have accepted it. One, Electric Power Board of Chattanooga, has rejected it as cutting too deeply into net income.

On the other hand, TVA has received wide support for its "Electro-Farm" program from both power distributors and from county agricultural agents. This program is designed to do for the farm what the Gold Medallion program is doing for all-electric homes.

Bundy can mass-fabricate practically anything

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

are at their pinnacle in terms of numbers, people employed, circulations, budgets, and influence.

There is a substantial trend toward house organs which go not only to the employe but to customers, stockholders, and the public as well. These magazines, called "combination" house organs, account largely for the tremendous circulation gains in the last few years.

Many external "combination" publications rival consumer magazines in editorial content, art work, and budgets. Several enjoy circulations well over one million each. Ford and Chevrolet put out two of the best, judging by the awards they receive.

Out of Our Mailbag

Hilson, Inc.
Cincinnati, Ohio

Editor:

For nearly 30 years or, to be precise since 1931 with the long since defunct Trupar (Mayflower) of Dayton, Ohio, I have been a NEWS reader. Subsequent years have been spent as district manager in various parts of the U.S. with Norge, Weber, Koch, etc., etc.

In other words, "Around the Horn."

Your publication has contributed a considerable portion to my education in this business. This is our initial offense in writing you.

We would like to term this a letter of thanks for your entertaining "Dope" columns and informative editorials, and at the same time, with tongue in cheek, a bid to bend your ear for a few moments, prompted by a selfish motive.

After years of traveling we started a small retail operation catering primarily to food markets. Being specialty minded, we sort of stumbled into the ice machine business, entirely foreign to us. About 70% of our efforts are now on ice equipment with moderate success.

Many of our sales have been to beverage carry-outs, supermarkets, service stations, etc., for the purpose of selling ice.

We began receiving inquiries from prospects about ice vendors. Those on the market we found quite cumbersome, costly, and not suited to our program, especially profit-wise. As far as we can determine, most ice vendor manufacturers cater primarily to the ice industry but have done little to woo the ice machine market.

Analyzing our location situation, as well as spot-checking here and there, convinced us we could sell vendors in conjunction with an ice maker outright to the businessman at a right price and profit picture for him.

Many ice companies and retail ice houses in our area are "going by the board," particularly in remote communities due to high delivery costs plus loss of much commercial business. We believe this situation is inevitable in many other parts of the country.

We attempted to develop a vendor of our own for our own customers. Three years and about $15,000 later we started building a few in our "back room" factory. From direct mail and word of mouth promotion we managed 25 or 30 units.

Most we sold locally, but we did ship several here and there over the country. Some even for soft ice cream stands and drive-in restaurants.

One or two ice machine manufacturers have approached us on sort of "Marriage" proposition. So far we feel inclined to maintain our "independence" (translated, meaning more gambling, more borrowing, and more work) and attempt a gradual expansion of manufacture and distribution.

We feel that in localities where the ice industry is fast deteriorating, our product, coupled with our method of selling it, lends itself to an alert, creative type outlet to "clean up."

We know that the NEWS is read by nearly everybody in this business. We have no doubt some "feeler copy" would bring us many inquiries. We do feel that our product is somewhat off the beaten path for many of your readers.

Limited dealer discussion we have had elicit favorable comments. However, few seem to grasp the true potential of this untapped market as we ourselves see it.

We do believe that throughout the country there are many creative specialty type organizations who could go to town, particularly in those areas where the ice company has gone to sleep. What portion of the NEWS subscribers and readers are this type of people, you undoubtedly know or have a much better idea than we.

Any comments, suggestions, criticisms, or advice your readers may find time to give us will most certainly be dovetailed into our plans.

G. E. HILEMAN,
President

Story of the Week

Ultracomic Danny Kaye accompanied Vin Scully (who reports this incident) to a Philadelphia bistro.

"Glass of beer, please," Danny ordered.

"Sorry," checkmated the waitress, "we don't have draft beer."

"Is it all right with you," Danny changed his order, "if I drink a bottle of beer out of a glass?"

"Hah!" snorted the unrecognizing waitress. "Always comedians I get."

Versatility? Long experience? Bundy has both; and that's why Bundy has no equal in the precision-forming of anything that can be made of tubing. Specialists design Bundy mass-fabrication fixtures and machines for precision at the lowest possible unit cost . . . whether it's a matter of a simple bend or the most complex shape. Quality? You can't beat Bundyweld® steel tubing; standard wall thickness and O.D. are held to +.002″ to —.003″, and it meets ASTM 254 and Government Specification MIL-T-3520, Type III. When you need tubing, it pays to talk to Bundy first. Call, write, or wire: Bundy Tubing Company, Detroit 14, Michigan.

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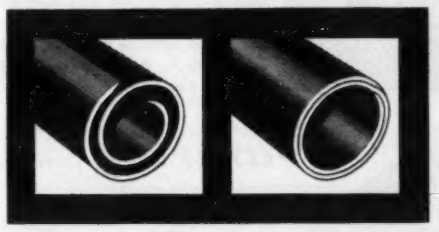

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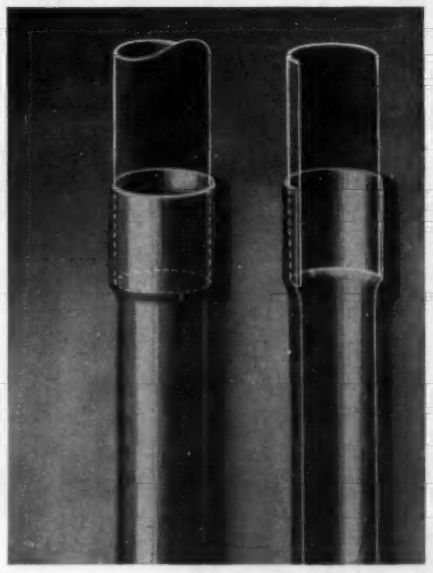

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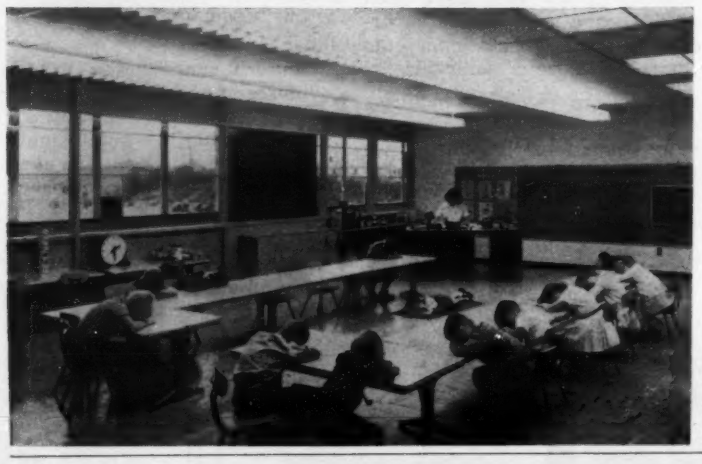
ELECTRIC HEAT—Utica Schools Like It

Board of Education Goes Back for 'Thirds and Fourths' Following 2-Year Test In Two Elementary Schools



CLASSROOM at West Utica school is heated with electric unit ventilators. Skylight (upper right), children, and lighting equipment provide sufficient heat so that ventilation is the chief requirement during the time that the room is occupied.

By Hugh T. Mahar

UTICA, Mich. — So satisfied with the success of the first two electrically heated elementary schools here are the public, the board of education, the administration, and the architect that two more schools with electric heat have just been authorized.

The West Utica and Ewell elementary schools were built in 1959 with 13 rooms each, according to Fred Atkinson, school superintendent. Both schools were later enlarged to 24 rooms. When asked if the schools had fulfilled all the claims made for electric heat at the time of construction, his answer was an unqualified yes.

Certainly the school board's recent decision to proceed with two more electrically heated schools can be interpreted as its amen to this.

Although the school district has been operating two virtually identical schools with electric heat, this report will concern itself with only one of them for simplicity.

When the board was planning the new school it was decided to conduct two parallel studies of the building construction and operating costs before letting bids. One study assumed the use of fuel-fired wet heat; the other was based on the use of electric heat. The first difference was that the use of electric heat would eliminate the need for a boiler and accessories, boiler room, and a large capacity chimney stack. The space conserved in this manner was calculated to be enough for a classroom for 30 pupils.

Actual cost of the building figured for electric heat was to be approximately $2,000 more for the same number of cubic feet as would have been the case with gas-fired wet heat. But the ability to house 30 more children convinced the board that it should go ahead with plans for heating the school electrically.

Ease and economy of expansion were other factors that entered into the decision to go with electric heat. These benefits have already been reaped by the addition of 11 rooms to the school. This reduces the construction cost-per-pupil, as well as the operating cost-per-pupil substantially, it is pointed out by school officials. Because no increase was needed in electrical transformers, the expansion cost was only to the extent of wiring and installation of units required for the additional rooms.

The inclusion of the extra classroom in the original structure increased the number of pupils to be handled in the building from 400 to 430, thus, making the cost-per-pupil for the electrically heated school $56 less than for the alternate heat. This was important since the school district was expanding rapidly and the total number of students in the building was a prime factor.

The parallel studies also took into account an estimated life expectancy of 20 to 30 years on a hot water boiler, burner, and pumps if fuel-fired wet heat

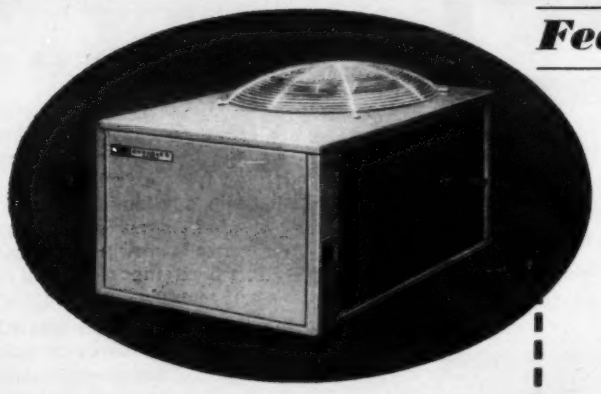
Basic Data

Architects—Smith & Smith, Royal Oak, Mich.
Consulting Engineers—B. A. King & Associates, Inc., Birmingham, Mich.
Electrical Contractor—Scheper Electric Co., Utica, Mich.
First units of two Utica schools—13 Classrooms.
Completed buildings (present)—24 Classrooms.

Connected Loads (kw)	13 Classroom Bldg.	24 Classroom Bldg.
Space Heating	246	349
Lights, Cooking, Water Heating	224	255
Totals	470	604

Temperatures Maintained	Day	Night
Corridors	60°	55°
Classrooms	70°	60°

Heating Equipment—Chromolox.



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The Chrysler 1254 also features the all-new "deep probe" motor guard, an overload protector wired directly to the motor windings. It eliminates the need for four separate (and complicated) control components . . . increases reliability and simplifies servicing.

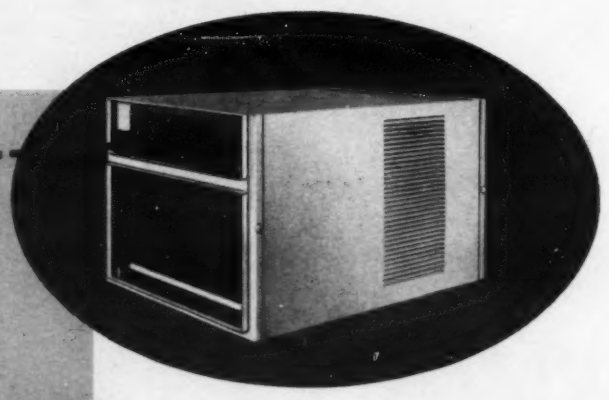
Add to these outstanding engineering advances a cooling capacity of 35,000 BTU's, and you have the most saleable system on the market.

Featuring Chrysler's New Model 1140

Built To Sell For Less Than $500 Plus Installation

This is really great news for your builder customers, and plenty of sure sales for you, too. This high-quality, low-priced Chrysler residential or commercial air conditioner is still another example of Chrysler's engineering leadership. Fancy frills and extra weight are gone, but you can count on Chrysler's reliability and minimum service. The 1140 delivers 33,000 BTUH — enough cooling power to cool up to 2,200 square feet of living space.

All the famous Chrysler quality and engineering advances are there, too. This, plus the wonderful price you can profitably quote with confidence—less than $500 plus installation — will put the Chrysler 1140 at the top of your list of best-sellers for '62.



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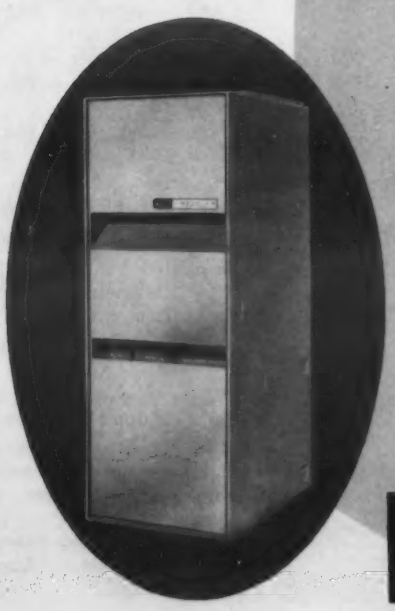

Featuring Chrysler's New Gas Furnaces

These smartly-styled Lo Hi-Boy gas furnaces are ideal teammates for either the 1140 or the 1254 air conditioners above. They're available in four capacities, from 80,000 to 150,000 BTUH. All feature new step-controls for smoother, quieter starting. All have built-in bottom panels to eliminate grouting. And conveniently-located knock-outs mean faster, easier installation.

These furnaces are part of a newly-expanded Chrysler line of 34 gas furnaces specially designed to meet builder requirements...competitively priced, with capacities from 50,000 to 200,000 BTUH. Call your Chrysler distributor today, and see Chrysler's new line of quality air conditioners and furnaces for 1962. Or write us for your copy of "The Chrysler Line is the Quality Line."

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Construction Cost

For comparison purposes, the cost figures used are those of the lowest responsible bidders who submitted proposals for both heating methods. Costs of site work and equipment are not included in the building cost.

Cost	Hot-water Heat	Electric Heat
Building	$368,044.00	$371,787.00
Per sq ft	13.60	13.61
Per cu ft	1.19	1.20
Per pupil	920.00 (400 pupils)	864.00 (430 pupils)

Because of the greater pupil capacity of the electrically heated building, the significant figure here is the cost per pupil. A net saving of $56 per pupil can be attributed to the electrical system.

Operation Cost

(Estimated)

Cost per year	Hot-water Heat	Electric Heat
Fuel oil	$2,560	..
Electrical energy	2,116	$10,050
Labor for operation of boilers and equipment	1,800	..
Annual maintenance	500	200
Boiler insurance	33	..
L.P. gas for cooking, water heating, and oil burner pilot	760	..
TOTAL	$7,769	$10,250

were used. By contrast, the study showed that the electric transformer could be expected to last for 40 years or more.

"Two important statistics were discovered in the planning of the two new schools," according to an article written by the architect and consulting engineer.

"A rectangular plan saves 13.5% of the perimeter wall and gives 15.5% more teaching area per student. There can be no question, then, that the rectangular plan is more economical to construct and heat. Of at least equal importance is the greater educational efficiency.

"With this in mind, the design of the schools changed from a U-shaped building to a rectangular shaped building.

"Both designs have the same floor area, but in the plan for electric heat 6 in. of glass fiber insulation is added in all ceiling areas, and the boiler room area is converted to classroom space.

"Corridors placed around the outside rather than in the middle of the building provide a heat buffer between the classrooms and the outside walls. This makes for a more comfortable classroom. The corridors are heated using baseboard units around the building periphery and force flow units at the entrances.

"The classrooms, offices, and large multi-purpose room are heated with unit ventilators. Outside air is introduced into these areas through the unit ventilators.

"Schools require very little heat during hours when occupied by students. Body heat combined with heat from lights and solar heat gain through the windows and skylights is nearly sufficient to heat the school buildings with very little energy consumption during the day.

"Main heating requirements in most instances is at night when the outside temperature decreases and the buildings are not occupied."

In the planning stage electrical consumption for heat was calculated at 74.0 kwhrs-per-degree-day. Actual consumption has been reported at 62.6 kwhrs-per-degree-day, or 15.4% less than planned.

Annual operating cost per student with a hot water heating system was estimated at approximately $19.42 while the cost with electric heat has proved to be $20.95 per student, resulting in a $1.53 per-pupil-per-year premium being paid for the electric heat system.

But this higher annual operating cost is offset by a net saving of $56.00 per student in construction costs in favor of electric heat. It will take approximately 37 years for the construction cost savings to be eaten up by the higher operating costs, the superintendent pointed out.

However, he believes this may be even a longer period as he feels that electric rates will go down, while the cost of fossil fuels is rising.

Savings in food preparation costs and lighting bills have resulted from the low rate that the school earns because of the high power consumption resulting from the electric heat. Lighting and food preparation are second only to heating in the consumption of electrical energy, it is pointed out.

In answer to a query about problems such as air stagnation and humidity resulting from electric heat, Atkinson indicated that these had not been any problem at all with the system which is a combination of unit ventilators and baseboard and force flow heater in the corridors and unit ventilators in the classrooms.

ELECTRICALLY HEATED corridors around perimeter of West Utica school provide buffer to keep cold from classrooms as well as reduce glare from the sun. As these corridors are used only for passage of students they are kept at 60°F while classroom temperatures are maintained at 70°.

In fact, he commented, many parents have reported that their children, who have asthma, seem to have less trouble when they are attending the electrically heated school than when they are separated from it for extended periods of time, such as vacation periods.

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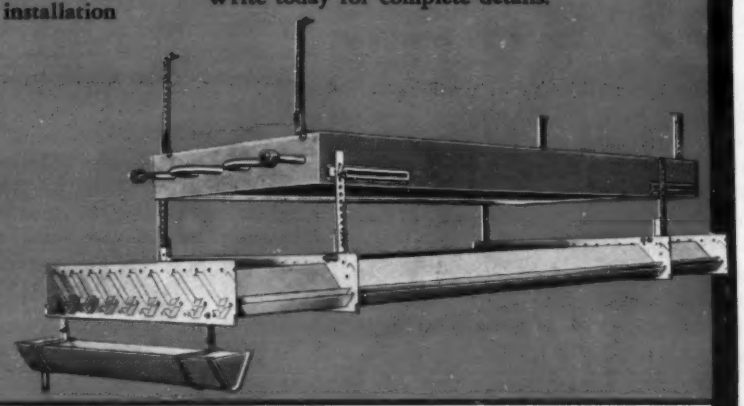
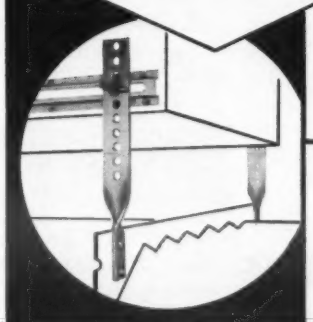
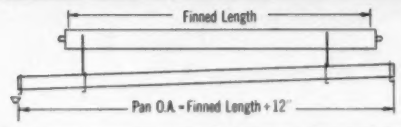
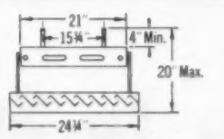


New time-saving installation idea! A built-in track running horizontally along the side of the coil is attached to a perforated, vertical hanger on the pan. Thus, you can quickly adjust the distance *between* Pan and Coil, as well as the air discharge *left or right or paired* ... and lock the installation into place with a thumb screw!

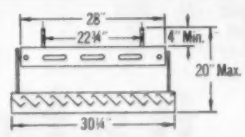




Note: Pans over 144" have drain at both ends. Pan is split at center with bridge.



Series 624



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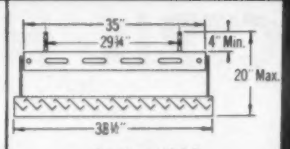

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90	80⅝a	* 3,195	6,390	4,260	8,520	5,325	10,650
102	92⅝a	* 3,685	7,370	*4,915	9,830	6,140	12,280
114	104⅝a	* 4,175	8,350	*5,570	11,140	6,960	13,920
126	116⅝a	* 4,670	9,340	*6,225	12,450	7,780	15,560
138	128⅝b	* 5,160	10,320	6,880	13,760	* 8,600	17,200
150	140⅝b	* 5,655	11,310	*7,535	15,070	* 9,420	18,840

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Editorials

ELECTRIC HEAT— How Much, How Soon?

Observe the predicted growth curves for electric heat to the right of this column.

Compare them with the composite growth curve of electric heat in three metropolitan areas in the lower diagram.

There is no doubt that electric heat will grow; there is great doubt that it can grow as rapidly as the dotted curve suggests; some question that it can grow as fast as even the conservative curve indicates.

Presently available statistics on electric heat are fuzzy. A prominent industry source, for example, claims that the one millionth electrically heated house has been installed. A spokesman for Edison Electric Institute, the utility association, told the NEWS, "We doubt the one million figure; 750,000-850,000 seems more reasonable to us."

There are about 300 electrically heated schools in the country. There are a couple thousand electrically heated schools in the country. Both these statements have been made in speeches.

Bureau of the Census statistics, which break residential heating down into several categories including electric heat, are just becoming available. The first group of these official statistics will be published soon in the NEWS.

Operating from a base of doubtful data, industry spokesmen have generated widely varying estimates of the rate of growth for electric heat. Adding to the confusion are the partisan journals, those trade papers understandably (and legitimately) promoting electric heat. One further complicating factor is that some sources include heat pumps in their data; others consider only resistance heat when they speak of electric heat.

From this mass of conflicting data and from its own studies, the NEWS offers the following summary—a summary which is of necessity an educated guess, but an independent one, uninfluenced by feelings for or against electric heat.

Including heat pumps and combination hydronics-electric systems and custom systems, there may be a million electrically heated residences in the United States; the EEI spokesman's estimate of 850,000 seems most reasonable for resistance heat. A major percentage of these are baseboard radiation, ceiling cables, and wall furnaces. The remainder is made up of glass panel, space heaters, duct heaters, and furnaces, and scores of other, essentially regional, devices.

Over half the electrically heated homes are in the South; about a third are in the West; the Northeast has the lowest electric heat usage.

And where is electric heat going from here?

We feel that many, most, of the prognosticators are making the same mistake made by air conditioning enthusiasts several years ago; they are assuming that long range growth will continue at the same rate which takes place when a new technology first catches the public's fancy.

It is not reasonable thus to extrapolate the steep portion of an early growth curve.

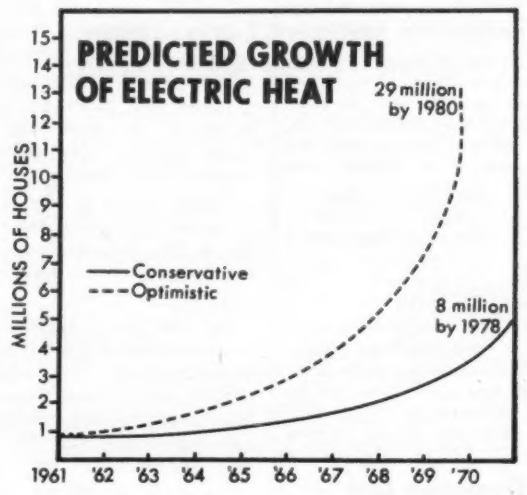
Several cities have already experienced a sharp drop in electric heat sales after three or four years of very rapid growth—this in spite of greater promotional efforts than those which created the initial sales surge.

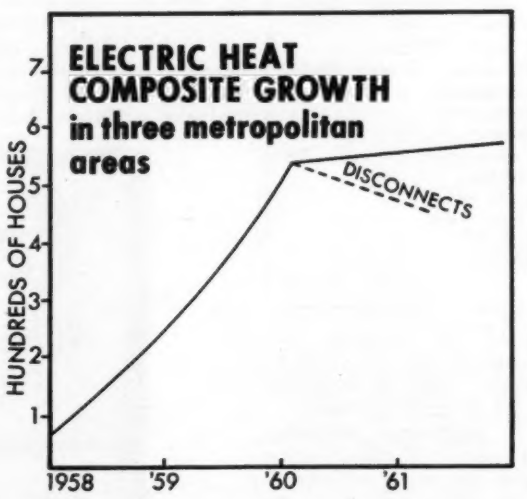
The lower diagram depicts the composite experience of three such cities, a tremendous leveling to a plateau-like growth pattern. Some of these same cities are experiencing *disconnects*—houses converting to fossil fuel after unhappy experiences with electric heat.

Electric utilities happily point out that residential kilowatthour consumption doubled from 1940 to 1950, then doubled again by 1960. One reason for this is that there were 36 electrical appliances on the market in 1940, compared to 74 appliances today.

But the growth of electrical consumption is not automatic; the rate has already slowed.

Our own prediction for electric heat is that it will experience a brief decline, then move on to approximate the conservative growth curve in the upper diagram.





COMMENT ON TWO PUBLICATIONS

Benoit Refrigeration
Amityville, N. Y.

Editor: (This letter was addressed to our sister publication, AIR ENGINEERING.)

A few articles on instrumentation would be just what the doctor ordered. I'm sure that manufacturers could furnish some very interesting material which would eliminate some of the gross errors committeed in the field, such as your October article concerning "balancing complex air distribution systems."

This may overlap slightly with the Tech Center column of ACH&R NEWS, but the additional depth you could give these topics would be very much appreciated, I am sure.

Keep up the good work. I thoroughly enjoy "our" publications. Good luck.

EDWARD BENOIT

ELECTRIC HEAT— It's Here To Stay

Opponents of electric heat are probably delighted at our mention of *disconnects* in the previous editorial.

Quickly, these people will recite why resistance heat, especially the type without forced air, will never sell:

- Operating cost is too high.
- Stagnation and odors become unbearable.
- Humidity buildup is excessive.
- People won't fuss with seven thermostats in seven rooms.

Yet, in one of the cities experiencing disconnects, 70% of the people with electric heat said they would buy it again in their next house.

Unless NEWS editors specifically asked questions about stagnation, humidity, costs, most owners never mentioned these items—as they surely would have were these chronic problems.

And people *do* set different temperatures in different rooms, especially for the very young and the very old.

It is safe to say that most users of electric heat are happy with it—although those who are unhappy are *very* unhappy. A valid indication of owner reaction appears in John O. Sweet's article on page 5.

Those who insist that America has no culture invariably compare Europe's best with our worst. We suspect that some opponents of electric heat are tempted to use the same technique!

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A Consultant Looks At . . .

Joe Olivieri has earned an enviable reputation for his engineering knowledge. He is also well known for his willingness to praise or criticize, as the occasion demands. Operating from his unquestioned background of knowledge, Olivieri offers opinions on many facets of the heating-cooling industry in these articles prepared exclusively for the NEWS.

ELECTRIC HEATING (1)

Watching the reaction of both engineers and mechanical contractors to electric heating makes me realize how people become bigots.

Anything that appears to be a threat to our livelihood is immediately attacked with all kinds of threats, half truths, and ridicule. Of course, the threat, electric heating, reacts at once with its own threats, half truths, and ridicule.

I can cite two examples:

Recently it was announced that we (J. B. Olivieri & Associates, Inc.) were designing an electric heating system for a large project. We were at once besieged by mechanical contractors, executive secretaries of wet heat and dry heat associations, manufacturers' representatives, gas utility representatives up to vice presidents, and even a couple of bartenders who watered our wine as punishment.

They all started by first pointing out how much more costly electricity was than gas or oil. When we overcame this objection and others by showing them our analysis, they used the same argument that bigots use—you are a traitor to your class; would you want your sister to marry an electrician?

Don't laugh too loud, my electrical friends. In the other case a utility told a school board client of mine that they must be using electric heat because the electric utility was the biggest taxpayer in the district.

In both cases the facts were thrown out the window and emotions ruled. Let's get down to facts! The decision as to whether or not to use electric heating is no different than the decision on any heating system. A system must be selected on the basis of its owning and operating costs and effects on architectural design.

The following case histories will illustrate how to decide whether or not to use electric heating.

Case History No. 1

A ten-room school with double loaded corridor. Owning and operating costs were calculated for a building with normal construction and for an insulated building.

In the normal building 2,260 sq ft of glass was assumed. In the insulated building the amount of glass was reduced to 1,200 sq ft and Thermopane was used. In addition, 4 in. of rigid insulation were assumed in a cavity wall and 3 in. of blanket insulation were added to the roof structure.

The owning cost was calculated at 5% interest for 20 years or 8% per year. Gas costs were assumed to be 90¢ per 100 cu ft. Electrical costs for the gas schools were assumed to be 2½¢ per kwh and 1½¢ per kwh in the electrically heated schools.

The amount of electricity used for lights was included as an operating cost because the electrically heated building, with its lower rate, results in a saving which must be considered.

Case History No. 2

A 10,000 sq ft air conditioned specialty shop.

Owning and operating costs were calculated for a building with normal construction and for a heavily insulated building. The building was assumed to be exposed on four sides, with 50% of the perimeter glass. Gas costs were assumed to be 90¢ per 100 cu ft and electric costs 2¢ per kwh.

It is interesting to note that not only is electric heating more expensive than gas but the extra insulation at a cost of $1,000 per year in the gas heated building results in a fuel saving of only $370 per year.

Electric heating presents no savings in owning costs, in this case, because the building has a central air conditioning system. The heating part of the system represents an almost negligible cost. Replacing the boiler with a large electric heater does not alter the first cost significantly.

If, however, the community required a boiler operator for the boiler, but not for the refrigeration machines, the salary of the operator would have to be added to the gas system.

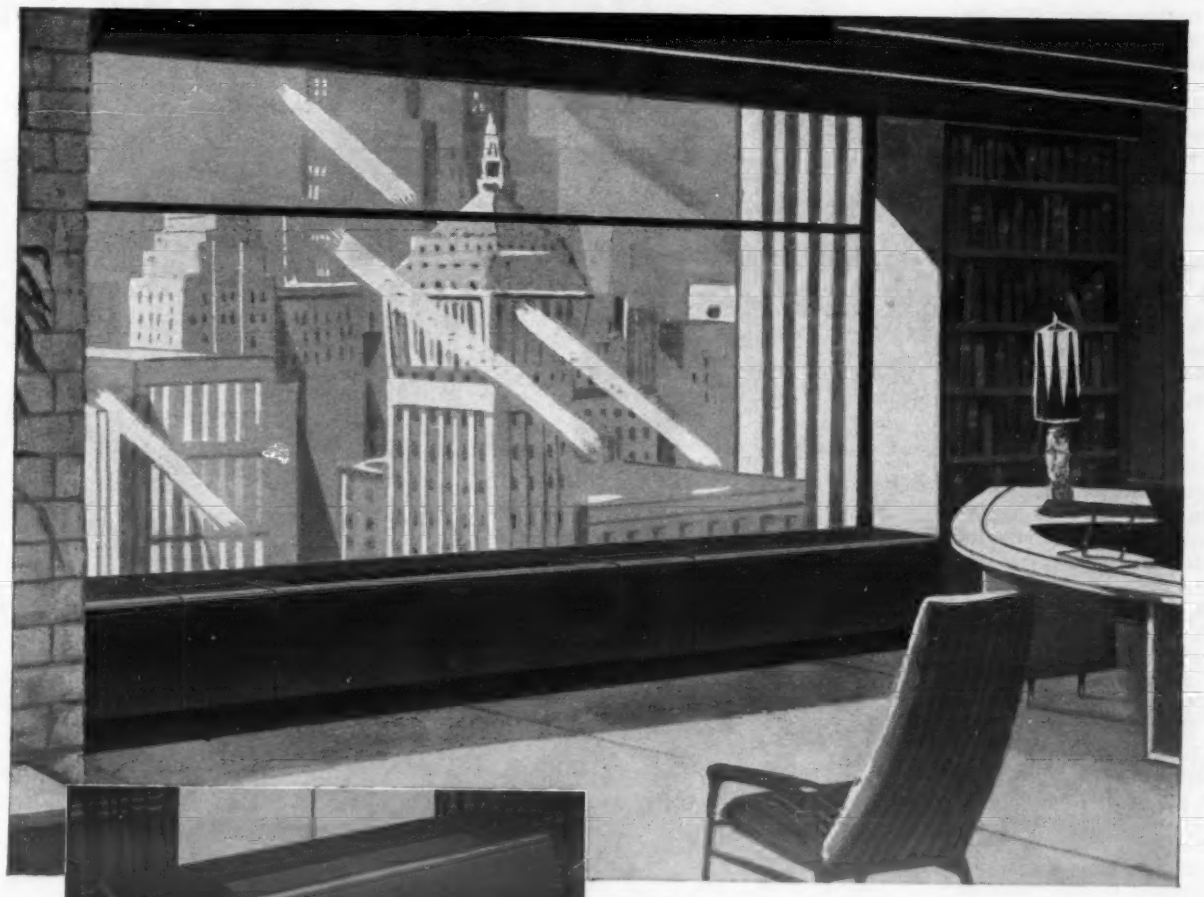
In this case, the whole picture would change and the electric system would be the one to use.

(To Be Continued)

Case History No. 1	**Normal Bldg. Gas Heat**	**Normal Bldg. Elec. Heat**	**Insulated Bldg. Gas Heat**	**Insulated Bldg. Elec. Heat**
First cost of building....	$152,000	$134,000	$160,000	$142,000
Owning cost of building	12,200	10,800	12,800	11,400
Fuel	1,750	6,600	700	2,700
Electricity for auxiliaries and lights	925	480	860	480
Maintenance	600	....	600	....
Total owning and operating per year.....	$ 16,375	$ 17,880	$ 14,960	$ 14,580

Case History No. 2	**Normal Bldg. Gas Heat**	**Normal Bldg. Elec. Heat**	**Insulated Bldg. Gas Heat**	**Insulated Bldg. Elec. Heat**
First cost of building....	$140,000	$140,000	$153,000	$153,000
Owning cost of building	11,200	11 200	12,200	12,200
Fuel	680	3,600	310	1,600
Electricity for auxiliaries and lights	4,408	4,400	4,408	4,400
Maintenance	400	....	400	....
	$ 16,688	$ 19,200	$ 17,318	$ 18,200

EXTRA THIN and EXTRA QUIET
THE NEW McQUAY
LO-LINE SEASONMAKER



more compact—15% thinner than any other make—for flush or away from wall or curtain wall installation

The new Lo-Line Seasonmaker is the most quiet air conditioning unit available and combines expected McQuay dependability with an exciting new design. The Lo-Line is little —just 12½" deep and 14½" high in flush wall model or free standing model that permits drapery behind it and is used with glass wall construction. But it's big in features—permanent split capacitor motor, slide out fan deck assembly, motor disconnect plug, large access doors and piping compartments, 1" vinyl coated insulation, finished rear panel and air filter removal without front panel removal. Wall to wall cabinet extensions are available for flush wall models. For more information, see your McQuay representative, or write to McQuay, Inc., 1607 Broadway N.E., Minneapolis 13, Minnesota.

McQuay Means Quality

4 SIZES
220 cfm • 330 cfm
440 cfm • 640 cfm

7 DECORATOR COLORS

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AIR CONDITIONING • HEATING • REFRIGERATION

MAKE THE SEASONS COME TO YOU

TECH

ELECTRIC HEAT:
State of the Art

Heat pumps aside, there are several methods of applying electric heat, resistance heat, to homes:

Glass panels
Ceiling and wall cables
Floor furnaces
Duct heaters
Central furnaces
Baseboard radiators and convectors

While some glass panels are still being installed, chiefly in regions being supplied by a local manufacturer, this form of electric heating has fallen somewhat into disrepute. Early experience with these wall-mounted units was largely unfavorable; the units burned out and broke in service, usually long before the warranty period was up.

An important minority of electric heating is cable-types. This is radiant heating, with warm wires, rather than water-carrying tubes, providing the heat in the walls or ceilings. Electric heating cable may be installed in new plastered ceilings or in plaster over existing ceilings.

Floor furnaces and wall furnaces are used extensively in some areas, as TVA; floor units are usually applied where for some reason it is impossible to install baseboard heaters.

Duct Heaters Used Where Air Handling System Already Exists

Duct heaters are used where there already exists an air handling systems, as with a central air conditioner. They can be used, too, where there is no air conditioning but where air movement is insisted upon, although in such cases it is becoming more common to use a central electric furnace.

Combination electric-hydronics systems are being suggested. One system uses in-place electric heaters to heat water or some other liquid acting as a heat transfer medium right in the baseboard convector. The advantages claimed are the elimination of a boiler and extensive piping and accessories such as circulating pumps.

"The heating element is within the radiation chamber, itself, with the liquid in the chamber transferring the energy from this element to the radiant heating surface," states the company's announcement.

Another system merely uses an electrically heated boiler in place of the conventional gas or oil-fired boiler.

A takeoff on this system makes use of heat storage in water. Such a heat storage system appeals to utilities because it allows the use of the electric power during off-peak periods, and conserves power during peak times. While the power is off, heat is supplied to the structure by the water which was heated electrically earlier.

All these ways of using electricity to heat will continue to be used in some degree, but there is no doubt that the big battle for the mass market will shape up between baseboard radiation and central furnace proponents.

The arguments used by both sides are technically oriented, but are actually economic in impact. For example, the fact is that a majority of present electrically heated home use baseboard; less than 1% use electric furnaces. It happens that most baseboard installations go through electrical contractors and electrical wholesalers, not through conventional heating contractors.

Warm air manufacturers, considering their own welfare and that of their own dealer-contractors, will attempt to disrupt this distribution pattern, especially since some of their outlets are calculating heat losses for the electrical contractor!

Part of the battle centers around the alleged disadvantages of the competing systems. Traditionally, warm air people have held that comfort is impossible to attain without the forced movement of air. Other reports in this issue comment on this point.

Relative Costs Between Baseboard and Central

Greatest concern is the relative cost of installation and operation between baseboard and central.

While central furnaces are just beginning to move, there does seem already established a tendency to oversize the heating elements when the structure's requirements are compared with baseboard. Here's the way one contractor, who installs both kinds, puts it:

"Say that a house needs 10 kw baseboard. When you put a furnace in, the furnace is designed so that it comes on in steps anyway. The difference in original cost between 10 kw and a few more kw in the furnace is not high. So we play it safe and install a larger furnace knowing that most of the excess heat will never be used."

A factor in this playing it safe is a certain indecision in the field over the significance of ductwork. Convention seems to be that, if the ducts are in an uninsulated crawl space or in the attic, you must add enough heat to overcome this loss.

However, if the duct loss is to the living area, consensus is that the heat eventually and actually goes to heat the house, so duct loss need not be considered in sizing the central furnace.

Whatever the form of electric heat, agreement is universal that house insulation will make or break the job. Invariably, $90-a-month heating bills have been due to faulty insulation. Without exception, complaints of discomfort have been traced to the same cause.

So important is insulation to electric heat that there have been harsh words between the insulation manufacturers and electric heat producers — with each claiming that the other is riding on his promotional coattail.

Complicating the picture is strong evidence that commonly accepted K-values for traditional insulation materials are inaccurate in practice — when

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by

FRANK J. VERSAGI

the insulation is actually installed in a real house, with people living in it, and it gets cold outside. Disputes over alleged blow-through, over permeability, and moisture resistance are involved. (Later Tech Centers will treat some of these subjects.)

It is conventional to call for 2-4-6 insulation—2 in. around the floor, 4 in. in the sidewalls, 6 in. in the ceiling. More recently, 10 in. are being suggested for the ceiling. The variable value of insulation, mentioned above, makes such recommendations just a bit academic.

Convection streaking is a common complaint against baseboard electric heat, but the complaint is neither more nor less common than it is with other forms of heating. There is evidence that properly mounted units do not cause as much streaking, although it is almost impossible to walk into a house which has been through a full season of heating without being able to see some streaks.

Humidity Problem

Humidity. Because electrically heated houses must be so tightly insulated and weatherproofed, there is a tendency for humidity to build up in them due to normal household activities like cooking, showering, and washing clothes. Opponents say this humidity problem is a major one; proponents say it is easily solved by using humidistatically controlled low-speed exhaust fans.

Opponents counter that you waste heat and increase costs when you exhaust air; proponents rebut with case histories showing 14, 15, and 16-cent per square foot annual heating costs for homes using two exhaust fans—usually one in the bathroom and one in the kitchen.

The NEWS has heard discussion about the advisability of locating the humidistat control for the bathroom fan in the bathroom. On one side, it is held that the stat located in the bathroom reacts too quickly to moisture buildup and exhausts humidity which can quickly and safely be absorbed by the remainder of the house.

On the other side of the argument that a high buildup of humidity in the bathroom can adversely affect the insulation, causing long range difficulties.

Incidentally, the ability of insulation to withstand a lifetime of electric house humidity is seriously questioned by some. They feel that the insulation will gradually become wetter and less effective, and that heating costs will rise continuously.

Temperature control of room units is usually from line voltage thermostats, either on the wall or in the unit itself. In ducted systems, control is by low voltage, wall-mounted thermostats.

When electric heat, in any form, is installed; when the insulation is in, the exhaust fans operating, the ultimate test is operating cost. Admittedly, many people are willing to pay slightly higher heating bills for the convenience of electric heating, but only *slightly* higher!

To this end, electric heat manufacturers are constantly urging utilities to provide lower rates for heating; while many utilities are complying, there are many who have made no real attempt to promote electric heat, either by lowering rates or by other means.

Some Utilities Not Too Enthusiastic

As is the case with heat pumps and with gas air conditioning, there are utilities who do not share the general enthusiasm being generated by their own association.

Those utilities who care generate leads, inspect insulation and installation, follow up on customer satisfaction. Indeed, there are those who charge that over-enthusiastic utilities, by approving inexperienced and unqualified dealers, may be hurting, rather than helping electric heat.

And the fact is that the greatest gray area in electric heat is installation.

As mentioned earlier, most of the installations are done by electrical contractors. Too many of these feel that installing electric heat is just a case of stringing a few more wires than usual, of ringing out a couple more circuits. Some make a wet-thumb-to-the-wind heat loss guess or, worse, figure kilowatt requirements by how the rooms and house compare in size with the last job they did. A few hire heating contractors to run an accurate heat loss calculation.

Critically important insulation is extremely variable in quality—not only in K-factor, as already indicated—but also in the care and skill with which it is installed. The NEWS has seen insulation which was specified by the electric heating contractor lying on wet ground, unused, in houses under construction.

Half or More of Electric Heat Going Into Existing Homes

Half or more of electric heat is going into existing houses. Insulation people use "toy blowers" with insufficient power to fill all spaces and crevices with adequate density.

In new houses, they leave uncaulked air spaces in plates, between window frames, around door jambs.

All that I have written so far should give a somewhat confused picture of the state of the art of electric heating; it was intended to do so.

For the state of the art is confused. The sound body of knowledge absolutely indispensable for the steady, sound growth of any technology has not yet formed in electric heat. There are too many opinions, too few indisputable facts.

The fact that most users of electric heat are happy with it means that, properly done, here is another valid way to provide comfort.

But too rapid a pace, using unqualified personnel, operating on questionable facts, can generate a reverse psychology which could stop the growth of electric heat in its tracks.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

REFRIGERATION PRODUCTS ARE DEPENDABLE...

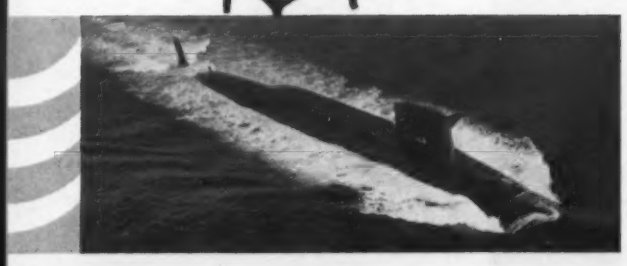
ON A SUNNY RESIDENTIAL STREET

Mister Softee modernized the old-fashioned ice cream parlor, set it on wheels, and sent it ringing down almost every street in the country. To make sure customers always treat themselves to fresh, tasty, wholesome ice cream products, Mister Softee, Inc. of Runnemede, New Jersey, uses *dependable* refrigeration products made by Mueller Brass Co. These components include Drymaster-Sightmaster combinations, Streamline copper refrigeration tubing, flare fittings and wrot solder fittings.

IN THE QUIET URGENCY OF A HOSPITAL LAB

Lipshaw Manufacturing Co. of Detroit, Michigan, has developed two new low temperature medical units to help research scientists, pathologists and technologists battle cancer. Temperatures as low as 50° C below zero are attained in the "Section Freeze" and "Cryotome" units, to make possible instant freezing of tissue specimens. This permits pathological examinations while the patient is still in the operating room, thereby often eliminating the necessity of a second operation. In the laboratory test stage, both units had difficult refrigerant moisture problems . . . solved when Lipshaw's chief engineer changed to *dependable* Drymaster Filter-Driers.

IN THE SILENT DEPTHS OF THE SEVEN SEAS



Dependable Streamline wrot copper solder-type fittings, which have been installed in America's nuclear submarines, are also employed in the Fleet Ballistic Missile Submarine, the Ethan Allen, built by the Electric Boat Division of General Dynamics Corporation of Groton, Connecticut.

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

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Sun-Tron Heating Panel Mounts on Ceiling

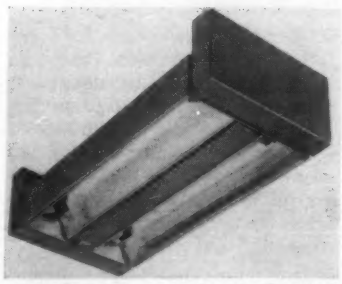
● An electric supplementary heating panel that mounts on the surface of ceilings in rooms needing extra heat—is offered by Sun-Tron Div., Methode Mfg. Corp., Dept. AH&RN, 7435 W. Wilson Ave., Chicago 31.

The unit mounts directly on the surface of the ceiling. It is not recessed, so no plaster need be broken. Dimensions are 9 by 36 by 2¾ in. According to Sun-Tron, the heating panel will supply supplementary heat for rooms up to 175 sq ft. For larger rooms, two units may be installed.

Heating elements are encased in steel sheaths. The sheaths, in turn, are covered by a perforated steel face panel decorated in a speckled beige-tone. The frame is satin-anodized aluminum.

"To turn the unit on and off, an ordinary light fixture switch can be used, or a thermostat installed in a light switch outlet box," the company said. "The 500-watt unit has been tested and approved by Underwriters' Laboratories, Inc. and carries a suggested list price of $54.95. It is available in either 120 or 240-volt ratings."

Infrared Heaters Designed for Outdoors



● Two new infrared heating fixtures, specially designed for use in unsheltered outdoor applications, have been announced by Luminator, Inc., Dept. AH&RN, 120 North Peoria, Chicago 80.

One of the new models is designed as a hanging fixture and may be chain mounted or supported by either a vertical or horizontal stem. Typical applications for this type of fixture are swimming pools, patio areas, car lots, outdoor abusement areas, walkways, and transit platforms.

The second model is designed for mounting to horizontal surfaces such as hotel, apartment, or theater canopies. This fixture is also recommended for indoor flush ceiling applications where styling is a factor.

Both new fixtures feature waterproof housings. Housings and covers are of 14-gauge aluminum with baked enamel finish. Color is gray scotch grain. Fixture reflectors are anodized aluminum and are hinged to allow relamping without disturbing fixture installation.

The new fixtures are available equipped with two T3 tubular quartz infrared lamps for use where both heat and light are desired or infrared quartz tubes for heat without light applications. The fixtures are also available fitted with louvers designed to eliminate glare in the normal range of vision for applications where the brightness of T3 lamps is objectionable.

"Here's why I standardized on H&M cooling towers

...they're the only towers with a 20-Year Guarantee on the wetted deck surface!

"In my town, most air conditioning and refrigeration buyers prefer cooling towers for their installations. But local water conditions are pretty hard on the fill. Fungus and algae grow fast and furious—so fast that the accumulation actually blocks air flow and cuts tower capacity!

"After trying several makes, I standardized on H&M Cooling Towers. *The wood fill is specially treated with creosote applied under pressure,* and water plants and animals can't live on that! That's why the Halstead & Mitchell towers carry a 20-Year Guarantee on the wetted deck against failure due to fungus attack or rotting."

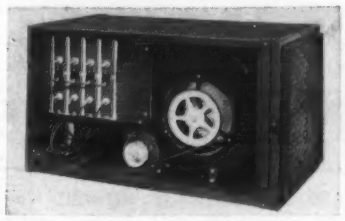
If you want towers that will last, and need a minimum of care, you should find out about H&M towers. Call your local parts wholesaler or write for Bulletin EC-500 (Propeller Fan Towers, 3 to 150 tons) or Bulletin ECKB-601 (Centrifugal Fan Towers, 5 to 30 tons). Halstead & Mitchell Co., Dept. H112 Bessemer Building, Pittsburgh 22, Pa.

HM

Halstead & Mitchell

Cooling Towers • Air-Cooled Condensers • Air Handlers and Coils • Water-Cooled Condensers

Export Representatives: Sobal-Kielmann, Inc., 15 William St., New York 5, N. Y.



Henry Introduces 6 Electric Furnaces

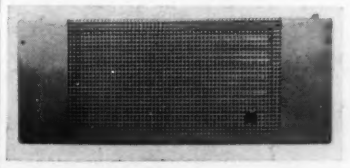
● A complete new line of "Moncrief" electric winter air conditioning units has been introduced by The Henry Furnace Co., Dept. AH&RN, Medina, Ohio.

Six units with electrical inputs of from 5 to 35 kw and with output ratings ranging from 34,150 to 119,525 Btuh comprise the new Series "E" Moncrief electric line.

The new units can be installed in either the horizontal, upflow, or counterflow position. The cabinets measure 34 by 20 by 20 in. for the three smaller sizes and 42 by 25 by 25 in. for the three larger sizes.

The smaller capacity units have a 10-in. standard equipment blower and provide air handling capacity for up to 4 tons of cooling. The three larger units are equipped with a 12-in. blower as standard equipment and have air handling capacity up to 5 tons.

A slide-out filter frame is supplied as standard equipment.



Convection Heater Warms Small Areas

● New natural convection electric heaters for selected area heating in small areas such as home workshops, insulated garages, laundries, basements, utility rooms, and small storage areas are available from General Electric Co., Electric Comfort Heating Section (NB), Dept. AH&RN, Appliance Park, Louisville, Ky.

Available in three Btuh ratings, the heaters may be wired for operation with wall-mounted thermostat. "Calrod" heating elements are breakproof and sagproof, it was stated. Pressed steel case is designed to withstand occasional knocks and jars, and safety against overheating or scorching of walls is assured by heat baffles which direct the heated air flow evenly throughout the space, G-E said.

"Installation is simple. Unit can be attached to wall with four screws and the power connected. It is recommended that the heaters be located a minimum of 2 ft above the floor and near cold air inlets, particularly windows."

Put Front Panel Lock On Baseboard Line

● Features added to its "Electric Sill-line" heating products include a tamperproof front panel lock, a twist lock interconnection plug, and a factory installed electrical conduit system, according to John J. Nesbitt, Inc., Dept. AH&RN, State Rd. and Rhawn St., Philadelphia 36.

"To these new features, Nesbitt adds modern styling and design simplicity," it was stated. "Baked enamel finishes in gray, green, tan, yellow, coral, or blue are not marred by any visible fastening devices. The smooth die-formed construction eliminates all sharp corners and edges."

Low Voltage Control For Electric Heat

● A compact low-voltage control system for electric heat, called "Level-Temp," has been announced by White-Rodgers Co., Dept. AH&RN, 9797 Reavis Rd., St. Louis 23.

The system has two components; a highly sensitive Level-Temp thermostat provides narrow differential control through a Level-Temp "Silent Operator" which handles the line voltage heating load.

Designed for use wherever low voltage control of electric heat is desired, Level-Temp will control in-duct heaters, wall insert heaters, blast-coil heaters, baseboards, floor register heaters, unit ventilators, auxiliary heaters of heat pumps, etc.

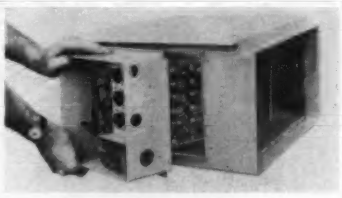
The manufacturer states that these controls eliminate all previous objections to low-voltage control systems such as noisy relays, oversize controls, excessive costs, and ambient temperature limitations.

The Level-Temp thermostat has "straight-line" styling, is heat anticipated, has gold dial markings, and features sealed mercury contacts. Level bubble in mounting plate assures quick, accurate installation.

The Level-Temp Silent Operator has both a male conduit hub and mounting tabs, making it adaptable to a great variety of both horizontal and vertical mountings.

Because of its compact size and silent operation, it can also be mounted on the side of ducts, within wall and ceiling heaters, inside baseboards and their control sections, remotely in an attic or between floor joists, or in other desired locations, the company said.

White-Rodgers stresses that the Level-Temp Silent Operation is ambient compensated for use in extreme ambients, from as low as -20°F to as high as 150°F. It is U.L. listed, features 18-in. color-coded leads, and has a 5,000 watt 240 volt, non-inductive rating.



Duct Heaters Insert In Cooling System

● A line of electric duct heaters designed for use as supplemental heaters in heat pumps, as air heaters in ventilating systems, or in conjunction with straight air conditioning units has been introduced by Thermador Electrical Mfg. Co., division of Norris-Thermador Corp., Dept. AH&RN, 5119 District Blvd., Los Angeles 22, Calif.

The duct heaters are available in 6, 8, and 12 kilowatt units for single or three-phase 240-volt service; 208-volt or 480-volt elements are available on special order.

Each duct heater includes a main contactor, a combination automatic reset limit and duct control, a low voltage terminal strip, and a plate-mounted control voltage transformer. Provisions are made for multiple staging by simple installation of up to two additional ductstats.

Portable Unit Can Heat Home Without Ducts

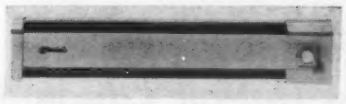
● Introduction of a new "portable" electric heater for national distribution has been announced by the Wesco Furnace Div. of Northwest Foundry & Furnace Co., Dept. AH&RN, 2345 S.E. Gladstone St., Portland 2, Ore.

Named Wesco "Revert-Air Electri-Heat," the unit provides sufficient filtered, forced air heat for most homes and for mountain and beach houses without use of air ducts, according to the company.

The "furnace" can be installed by plugging into a 220-volt electric outlet. A two-stage thermostat and two-stage blower provide what Wesco refers to as "modulated" heat. Heat is blown at floor level in two, three, or four directions. A 10-kw model delivers 34,150 Btu and a 15-kw 51,225 Btu.

Baseboard Unit Has Patented Fin Design

● An electric baseboard designed for "fast, labor-saving installation" in multi-home developments, custom houses, apartment and multi-story buildings, churches, and commercial and industrial installations is being manufactured by Sundial Electric Corp., Dept. AH&RN, 130-15 89th Rd., Richmond Hill 18, N. Y.

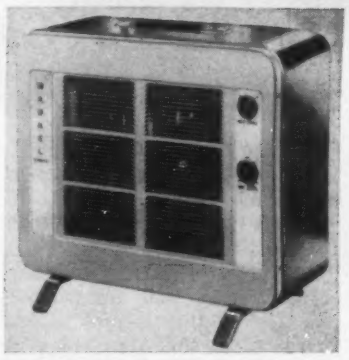


Sundial baseboard features a copper-aluminum heating element and a special patented fin design, it was pointed out. The element consists of coiled "Nichrome" wire in solid ceramic.

Among other features are piano-hinged connection box with a lid-mounted thermostat (½°F), snap-on end caps, snap-on linear joints for "in-line" joining, and piano-hinged inside corner which permits the joining of baseboard sections at any angle.

The baseboard in lengths of 3, 4, 6, and 8 ft is available for both 120 and 240-volt hook-ups; two densities—200 and 250 watt per foot; 600 to 2,000 watt, and comes completely assembled.

The week's What's New section is devoted to items indicating the range of electric heating products available to the trade.

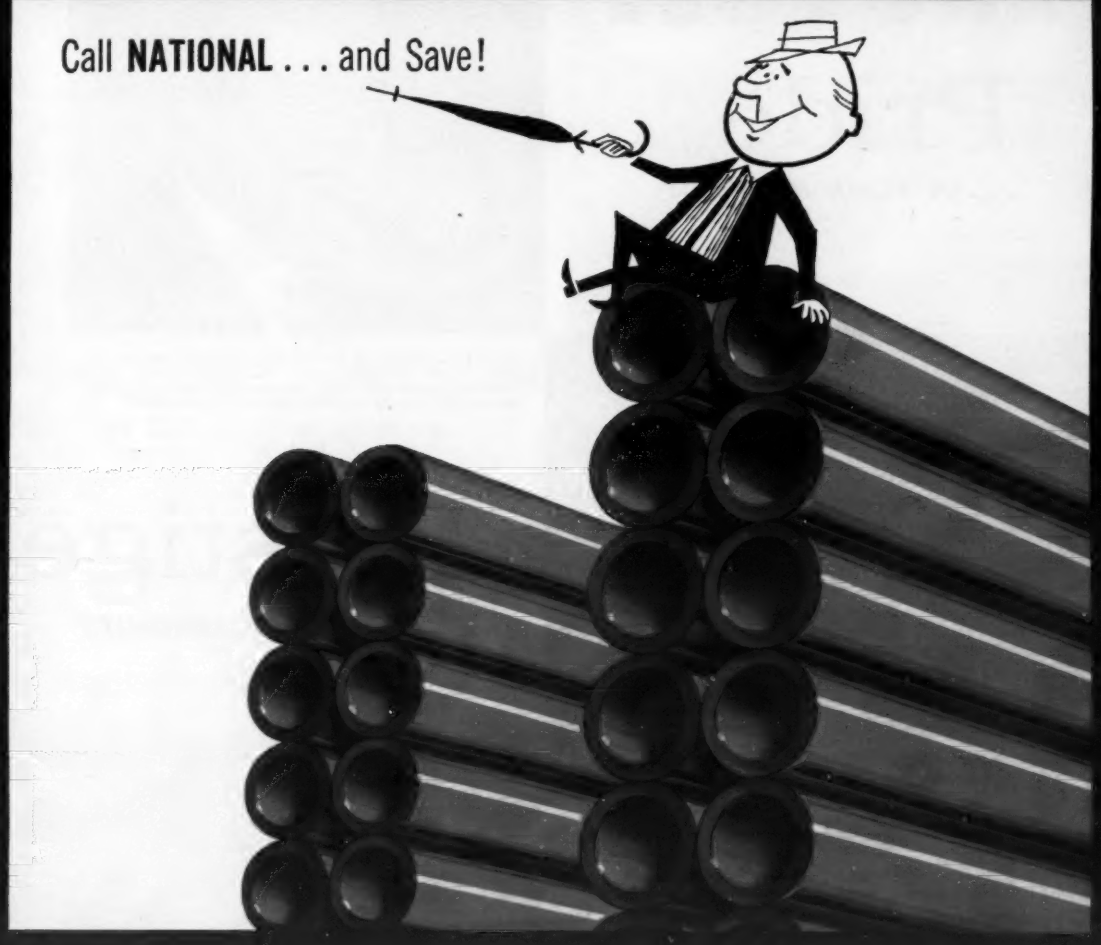


Fan-Forced Portable

● Full range portable heat for large hard-to-heat areas reportedly is provided by the "Hi-Wattage" automatic fan-forced "Heetaires" introduced by Markel Electric Products, Inc. and LaSalle Products, Inc., Dept. AH&RN, 143 Seneca St., Buffalo 3.

Features include 10 in. fans, permanently oiled 6-pole motors, automatic safety-switch, built-in hydraulic heavy-duty thermostat.

Call **NATIONAL** . . . and Save!



You Get Up to 5% More Copper Tubing From National . . . On Every Order!

While all copper tubing is manufactured to standard specifications, commercial tolerances allow certain variations which can be costly to you . . . wall thickness is one example.

You *use* tubing by the *foot* or the piece . . . but you pay for it by the *pound*. If you are buying tubing with walls that are regularly heavier than you have specified, you're being overcharged as much as 5% on footage. You're paying a premium and have to reorder more often than you should.

When you buy from National Copper, you get tubing that is drawn to your specifications for wall thickness, concentricity and length . . . at a considerable saving. Next time, order from National.

NCS

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Electric Heat 'Growing by Leaps And Bounds,' Says Detroit Edison

DETROIT—Increasing popularity of electrical heating of homes and commercial establishments is reported by the Detroit Edison Co.

The use of electricity for complete heating and for supplementary heating is only a few years old in this area but it is growing by leaps and bounds, say Edison officials, according to a release issued by Owens-Corning Fiberglas Corp.

In the 11-county area of southeastern Michigan which approximates the utility's service area, there is this record of the present use of electric heat:

Completely heated — 1,964 homes, three schools, two churches, one hospital addition, one restaurant, one florist shop, one do-it-yourself dry cleaners.

In addition, 1,500 motel units in the area are completely or partially heated electrically, and 12 drive-in theaters have installed electric car heaters for the comfort of patrons.

Electric heat also is used industrially although existing records are incomplete so totals are not accurately known. During the first half of 1961, more than 3,600 kilowatts of electric heat were installed in commercial and industrial establishments alone.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Utilities Tell What Kind of Electric Heat Is Being Installed—And Who Is Installing It

By Phil B. Redeker

DETROIT — A survey conducted by the NEWS among electric utility companies, covering essentially the matter of the *kind* of electric heating that is predominant in the territory they serve, and the *type of contractor* that is the main factor in selling electric heat, shows only slight variation for 1961 over 1960 — variations which certainly don't denote a trend, but which may hold some significance.

(The utility companies were asked to supply data for as much of 1961 as they had records available, and for all of 1960.)

No attempt was made to evaluate the survey in terms of size of various areas served by the reporting utilities, geographic location, or other factors.

However, reported results have been split in the tabulation presented by the NEWS between those utilities who reported heat pump installations as less than 10% of the residential heating installations in their area credited to electric heat, and those utilities who reported heat pump installations as more than 10% of the total. One third of the returns were from areas where heat pumps accounted for more than 10% of the total.

For a general summary, the picture would look like this: baseboard type electric resistance heating continued to dominate the picture in those areas where heat pumps accounted for less than 10% of the residential installations credited to "electric heating." In those areas where heat pumps account for more than 10% of the total, the heat pump—at least for those utilities reporting—did not over-all show any great gains in 1961 over 1960 in terms of a percentage of total "electric heat" jobs. Neither did the heat pump show any great decline in sales.

Type of Contractor Follows Line of Equipment Installed

The split between types of contractors doing the installations held about the same. Electrical contractors dominated those areas where electric resistance heating dominates (82.5% of installations in 1961), but took second place to heating and air conditioning dealer-contractors (64.2% in 1961) in areas where the heat pump accounts for more than 10% of sales.

The gain shown for electric duct furnaces in 1961 would hardly seem worth mentioning in terms of its relation to total sales, yet it is worth noting that an increase was shown.

Some utilities that did not furnish information for the survey said that they had not supplied information because there was little activity with such

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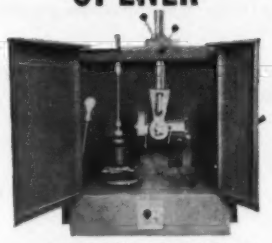

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equipment in their area, and they did not promote it. For example, an executive of Florida Power & Light Co. (in Miami) stated:

"You will be interested to know that our company does not promote or recommend the use of this service in any form of electric resistance-type space heating. We, therefore, do not maintain records and statistics.

"However, we are very much interested in the promotion of air conditioning and are assisting our sales allies in pushing the sale of reverse-cycle systems and heat pumps, provided they are not equipped with electric resistance heating."

An Arizona combination utility states that "presently, electric heating in our service area for complete home heating is of no consequence. The heat pump accounts for most of the electric heating. We do have some baseboard and wall panel electric heating, but it is used mostly as supplemental heating to the heat pump. There are some wall panel units installed in added rooms where central duct systems cannot reach."

A reply received from a utility serving a heavily populated California area stated that "heat pump and ceiling cable are the predominant types of electric heating in our area, and are rapidly growing in popularity, especially with owners and builders of multiple apartment dwellings of which there is now a large increase in construction in our service area."

A somewhat plaintive note was sounded by a publicly owned utilities official in Louisiana, who stated "we have no electric heating rate and very few electric heating installations. We would like a heating load to offset our summer peak."

* * *

Average Percentage of Total Electric Heat Installation by Type of Equipment In Areas Served by Utilities Reporting in the Survey

(For as Much of the Year 1961 as Utilities Have Data)

Baseboard	Ceiling Cable	Duct Furnace	Wall Panel	Heat Pump
For utilities *where heat pump installations* were *less than 10%* of the total.				
68.2	20.4	1.2	7.7	2.5
For utilities *where heat pump installations* were *more than 10%* of the total.				
33.8	3.4	2.6	9.4	50.8
Average for all areas served by utilities reporting in the survey.				
57.6	15.0	1.6	8.3	17.5

(Averages for Entire Year 1960 by Utilities Reporting)

Baseboard	Ceiling Cable	Duct Furnace	Wall Panel	Heat Pump
For utilities *where heat pump installations* were *less than 10%* of the total.				
63.2	22.3	0.5	10.8	3.2
For utilities *where heat pump installations* were *more than 10%* of the total.				
31.8	3.2	1.5	9.2	54.3
Average for all areas served by utilities reporting in the survey.				
55.0	15.7	0.8	9.2	19.3

●

Percentage of Total Residential Electric Heat Systems (All Types Including Heat Pumps) Made by Various Kinds of Dealer-Contractors

Heating & A. C. Dealer-Contractors	Electrical Contractors	Building Contractors	All Others
(For as Much of the Year 1961 as Utilities Have Data)			
For utilities *where heat pump installations* were *less than 10%* of the total.			
6.3	82.5	7.0	4.2
For utilities *where heat pump installations* were *more than 10%* of the total.			
65.8	30.6	1.9	1.7
Average for all areas served by utilities reporting in the survey.			
24.6	65.9	5.3	4.2
(Averages for Entire Year 1960 by Utilities Reporting)			
For utilities *where heat pump installations* were *less than 10%* of the total.			
6.2	80.3	6.2	7.3
For utilities *where heat pump installations* were *more than 10%* of the total.			
64.2	33.2	1.4	1.2
Average for all areas served by utilities reporting in the survey.			
24.2	65.0	6.3	4.5

Air Conditioning Is Standard; Builder Promotes Electric Furnaces

INDIANAPOLIS — Year-round air conditioning is standard and electric furnaces are being recommended by the builder in a new home project at 6500 W. Morris St. here.

Four model homes were completed for the grand opening in mid-October. Price range is $14,500 to $18,000.

Explaining why he plans to install air conditioning in all the homes as a standard feature rather than an option, builder Robert Schoen says, "We just feel that air conditioning has reached the point where it's a standard requirement. It's a good selling point.

"People are looking for something *new* in a new home," Schoen contends, and he thinks air conditioning is the answer.

"We're also completely sold on electric furnaces," he added, but gas furnaces will be offered as an optional choice to buyers. The model homes, however, are equipped with electric furnaces.

Lennox equipment is planned throughout, being installed by Carley Heating Co.

Cooling system consists of a Lennox 2-ton HSA2-151 remote condensing unit connected to a down-flow LSR1-200 evaporator. Electric furnace is the Lennox ES1-391 model.

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Mfrs. Discuss Industry Problems, See Utility As Key To Electric Heat Growth

DETROIT—Electric heat will move only so fast and in such areas as the electric utilities will let it.

That is the belief of many manufacturers of electrical heating equipment who replied to a NEWS questionnaire on their outlook for the future of electric heat.

Most manufacturers agreed the consumer shows great interest in heating by wire. But until the electric utility in his area encourages its use, particulary through special electric heating rates, it will get nowhere as far as volume sales are concerned.

As W. T. Goldsmith of York Corp., asserted, "The market, present and future, and the problems facing the industry may be summed up in one word —utility.

"The electric utilities' attitude and desires for electric heat within their own areas determines specific markets.

"Before electric heat can be merchandised nationally, obviously the rates would have to be low nationally.

"This is not the case today. But in selected areas where utilities have a surplus of power to sell or a favorable rate such as TVA, these specific utilities merchandise electric heat and it is sold heavily in their territory."

William Hawkins of Sun-Tron Corp. says "People know electric heat is here, but no great percentage are using it. Most people are waiting for the Joneses to try it before they do. Of course, the utility must actively promote it."

Wallace E. Hubbert of John J. Nesbitt, Inc. declared that the future growth of the electric heating market will be largely influenced by the growth of air conditioning.

"In those areas were schools are not being air conditioned," he explained, "then certainly the use of unit ventilators employing electric resistance heating elements is bound to increase.

"But when air conditioning is being considered, and quite frankly, we foresee this being a consideration in almost every school district throughout the country in the next year or two, then the thought of electric resistance heating is forgotten."

Distribution Pattern Confused

Most manufacturers agreed that the distribution pattern for electric heat is somewhat confused. Through what channels electric heating equipment will be sold, or which channels are best, is still a matter of individual opinion.

Resistance heating equipment manufacturers generally prefer the electrical wholesaler and electrical contractor. Ducted heating and unit ventilator manufacturers seemed to prefer the air conditioning and warm air heating contractor. Electric water heating system manufacturers favored the plumbing contractor. Newcomers to the field with established networks of distribution are attempting to merchandise electric heat through that network.

Hawkins pointed out that distribution is a problem because most all distributors have access to most all manufacturer's equipment.

"None want to stock, but rather want to buy just as orders are received," he said. "I do feel the distributor must have at least one man as a specialist to calculate jobs as well as a man to educate their salesmen on the advantages of electric heat. Both are necessary to sell and keep sold the electrical contractor and dealer."

S. J. Heiman of International Oil Burner Co. finds the most effective pattern to be distributor to electric contractor to builder or consumer. "Never again will the electric contractor have the opportunity he has in electric heat at the present time," he averred.

F. T. Walsh, president of Sunwarm, Inc., sees the trend toward marketing electric heating equipment through the electric wholesaler and contractor.

"In some areas," he said, "due to the large amount of missionary work required, distribution has been through spe-

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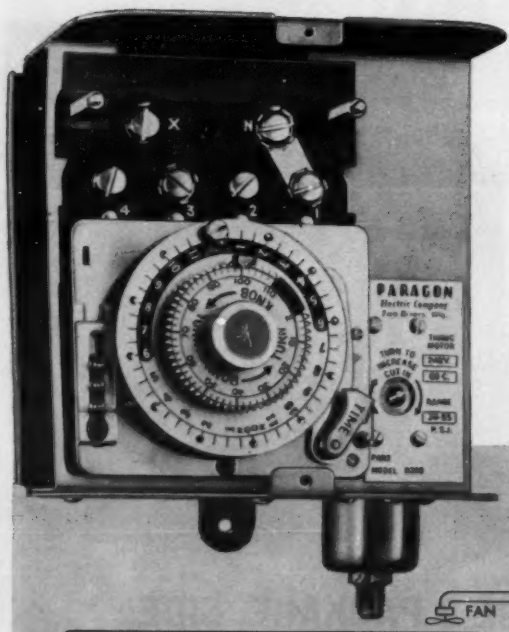

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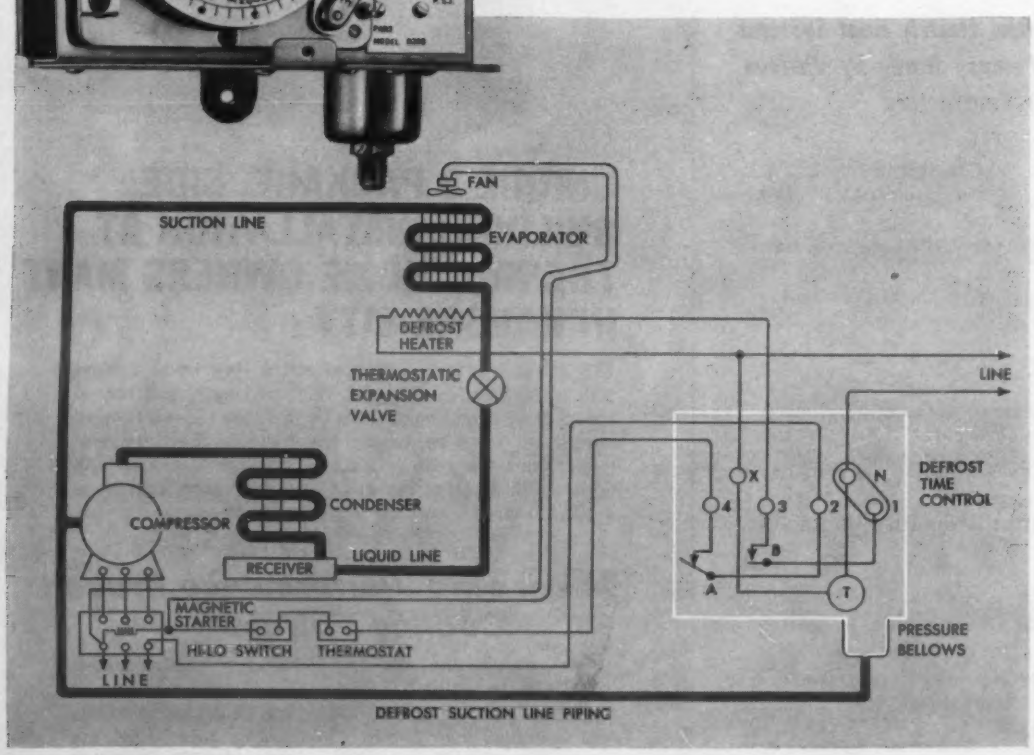

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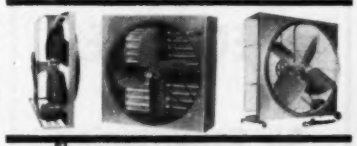

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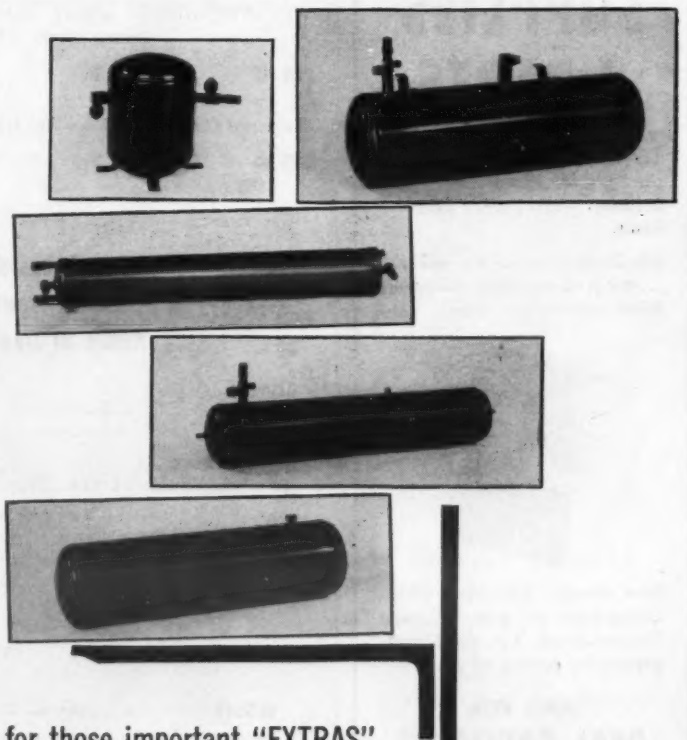

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cialty distributors. However, this type of distribution seems to be growing smaller as the volume of electric heating grows."

Industrial Engineering & Equipment Co. says that since most of its duct heaters are designed for specific requirements, it finds sales are primarily through heating and ventilating contractors.

Goldsmith said York ducted electric heat distribution is clearly through sheet metal, air conditioning, and heating dealers.

"We are not specifically interested in developing electrical contractors unless they are also in the air conditioning business," he added. "We find that most heating contractors are sheet metal men and are flexible enough to move with the trend of fuels."

Worth Ware of Edwin L. Wiegand Co., summed up by saying distribution will go to the one who does the best job of merchandising and insisting on good installation in structures properly built for electric heating. No one knows yet whether this will be electrical contractors or heating contractors."

Cite Problems

While manufacturers did not consider the problems of the electric heat industry any different from those of any other growth industry, some cited specific problems that demand attention. These are largely in the realm of proper installation and heat loss calculation.

"With the bulk of the product going into new construction, obviously the trend is toward lower cost installation and hence the constant battle of lowering prices with efforts to preserve markets," said Goldsmith.

Walsh agreed but mentioned these specfiic problems: need for standards for the industry, standardizing on methods of distribution, and price cutting.

C. T. Pfirrmann of the Williamson Co. said the biggest problem facing the electric heat industry is going to be competitive rates in comparison to other fields.

Richard F. Gamble of Thermador Electrical Mfg. Co. listed these problems:

1. Reluctance of some utilities to establish an electric heating rate or to promote the advantages of electric heat to their users.

2. "Johnny-come-lately" manufacturers who introduce and promote electric heating products which are inadequate or expensive to operate.

3. Lack of uniform standards throughout the country. "While all heaters are UL approved," he explained, "many areas or utilities require design modifications which are not considered by UL as being a necessity to safe operation or maintenance of the products. It is almost impossible for the manufacturer to design and produce one product which is acceptable to all the various arbitrary standard-setting groups throughout the country."

4. Reluctance of electrical contractors to promote electric heat to his customers. "In some areas, the electric heating contractor (usually an electrical contractor who has seen the light) has specialized in electrict heating and done an excellent and profitable job for himself. In most instances this is possible only because he has no competitors, whereas every electrical contractor in the area should be a competitor."

Need More Education

Milton H. Lipschitz of Sundial Electric Corp. sees need for proper education on the consumer level as number one industry problems and then for an aggressive industry-wide information program on the contractor level.

C. C. Floren of Lennox Industries, Inc. agreed. He added that by public education he meant that "they must recognize that the air must be treated and that the addition of heat alone isn't enough for comfort."

Heiman further commented on this point, "the statement that a Btu is a Btu as long as you project the correct amount into a room, that's all that matters, is idiocy in its wildest form, as those of us in the heating field know."

Another point that needs promoting to the public, says Charles Reichelderfer of Peerless Corp., is that 100°F air at the diffuser will heat a room. With electric heat we no longer have a 100° temperature rise through the furnace to a 170° bonnet temperature.

He added that our contractors will have to be more careful on installations, using the correct diffusers and locating them properly.

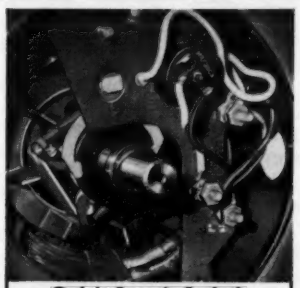
Edwin Wolcott of Electromode Div. of Commercial Controls Corp. asserted that customers must not be confused by the use of terms they know nothing about. A degree of maturity must be developed by industry, utility, and user.

Must Uphold Standards

Wolcott noted that there are now more than 160 heating manufacturers "and more joining every week. Industry standards must be upheld and both quality and performance built into all equipment," he said.

Ware considered the industry's biggest problems to be that both the public and self-styled electric heating experts are unaware of what makes electric heating practical.

Another problem is that the experience record of electric heating deviates widely from conventional heating calculation and theory.



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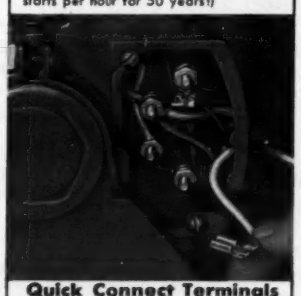

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Where Does Electric Heat Stand?--

(Continued from Page 1, Col. 5)

giving satisfaction. Tight insulation allows this because of low heat gain.

● DISTRIBUTION of electric heating equipment presents a confused picture. Non-ducted equipment generally sells through the electrical contractor and ducted equipment through the heating and air conditioning contractor. There appears to be little desire on the part of either to invade the other's field, although heating contractors have been known to calculate the heat loss for electrical contractors. However, several utilities have in the past year or so made strenuous efforts to attract heating and air conditioning contractors into the electric heat business.

● CONTRACTORS, except in rare instances, spend very little effort trying to sell electric heat. Generally they leave the missionary work to utilities and manufacturer. But, they will install an electric heating system when the customer wants it. Those who delve, find the existing home market to be as active if not more active, than the new home market.

● UTILITIES are the key to electric heat sales. Where the utilities are willing to promote it to offset summer air conditioning peaks, electric heat can and is being sold. But where the power company, for one reason or another, does not want the additional load, electric heat is not being sold in quantity. (See survey results on next page.)

● MANUFACTURERS are aware of this and say that electric heat will never attain a truly national market until utilities in all areas establish competitive electric heating rates. As for product, manufacturers invariably consider the type of heating equipment they manufacture — whether it be wall heaters, ceiling cable, electric furnaces, electric-hydronic baseboard, etc. — as the best possible type. They do not see any major advances over present products appearing on the horizon.

● INSULATION goes hand in glove with electric heat. While basic thermal resistances are insisted upon for good installations, advocates of even more insulation claim that it pays for itself in lowered operating costs for both heating *and cooling*. While most electrical heating contractors work with an insulation contractor on an installation, some prefer to do the complete job themselves. The insulation contract can very well equal or exceed the heating contract in dollar volume.

● FEDERAL HOUSING ADMINISTRATION is unhappy with the present formula for dedeterminig operating costs in electrically heated houses. Commissioner Neal J. Hardy calls it inadequate. Many in the industry agree. Work is being done to correct these inadequacies, which, in some cases, may inadvertently prevent prospective purchasers from qualifying for FHA loans on electrically heated homes.

● MOST POULAR form of electric heat in the Tennessee Valley area, where the largest concentration of electrically heated homes is located, is the wall heater. Elsewhere it appears to be baseboard radiation. Everywhere ceiling cable is the second choice. Electric furnaces and other forms of ducted heat lag far behind, statistics indicate.

● SERVICE problems are minor with resistance heating.

All these points you will find discussed in more detail throughout this issue and in material that will be published in later issues of the NEWS.

But, in considering the total electric heat picture, there are a few other facts worthy of notice:

● The coal industry has a lively interest in electric heat. Seventy percent of the coal mined is used to produce electricity. The United Mine Workers are well aware of this and have been actively promoting electric heat for several years. They see a tremendous market for electric heat.

● The average annual residential power consumption was 934 kwh in 1940, 1,643 in 1949, and 3,500 in 1959. Power companies are aiming for a national average of 7,000 by 1970. On the other hand, in the city of Chattanooga, Tenn., where 53% of the wired homes are electrically heated, average annual residential power use is already 14,250 kwh and rising.

● In a 3,000 degree day area, an all-gas home brings the electric utility about $50 a year for 1,500 kwh. An all-electric home would consume 23,000 kwh and bring in $375.

● Non-heating season use of electricity by householders with electric heat is higher than non-heating season use by those without it.

● Electric heat for add-on rooms, for supplemental heat in basements and garages is growing at a more rapid pace than total home heating. However, actual statistics on this market are lacking.

● Although a growing number of warm air heating equipment manufacturers are adding electric furnaces and duct heaters to their lines, others are bent on fighting resistance heat. While they generate arguments to show that electric heat without air movement won't work, satisfied customers are buying room-by-room systems from electrical contractors and wholesalers.

Salt Lake City To Get Silver Shield Story At Nov. 14 Meeting

SALT LAKE CITY — At a meeting scheduled for Tuesday evening, Nov. 14, at the Mountain Fuel Supply Auditorium, 180 E. First St., heating and air conditioning dealer-contractors from the Salt Lake City marketing area will get the full story of the Silver Shield Program.

"Silver Shield" is a program developed by the National Warm Air Heating & Air Conditioning Assn. Cooperating with the association is a Silver Shield Action Committee consisting of Robert Arbuckle, Arbuckle Heating & Air Conditioning Co., acting chairman; David Wood, heating engineer; and Alan Huish, Armstrong Supply Co.

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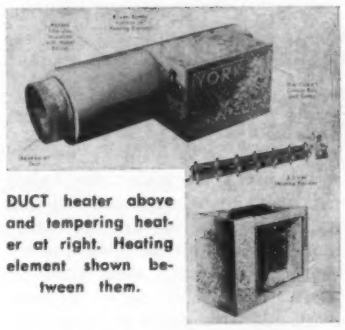
NEWS Indicator Survey of Electric Heat Status In Representative Utility Areas

This table is intended to give you a picture of where electric heat stands today in various sections of the country and its prospects for growth. The data was sent to the NEWS last summer by the utilities named. It shows how many homes are now electrically heated in the utility's territory, what percentage of them were installed during 1960, how many kilowatt hours, on the average, it takes to heat a house in that area, and what rate the electric heat user must pay for his comfort.

1. Number of Homes Totally Heated by Resistance Heat.
2. Percentage of These Homes Sold During 1960.
3. Annual KWH Consumption for Electric Heat (*—Total House Consumption).
4. Terminal Step Rate.

Utility	1. No. of Homes	2. % Sold In '60	3. Annual KWH	4. Terminal Step Rate
Alabama Power Co.	3,480	12%	8–9,000	1.2¢
American Electric Power Service Corp. Indiana & Michigan Elec. Co. Ohio Power Co. Kentucky Power Co. Wheeling Electric Co. Appalachian Power Co. Kingsport Utilities, Inc.	25,345	25%	10–15,000	.5
Atlantic City Electric Co.	2,200	26%	14,000	1.8
Baltimore Gas & Electric Co.	489	20%	13,350	1.75
Burlington (Vt.) Electric Light Dept.	70	50%	16,000	1.4
Central Maine Power Co.	163	49%	*24,000	1.9
Chattanooga Electric Power Board	37,524	8%	13,750	0.75
Cleveland Electric Illuminating Co.	2,331	10%	11,800	1.7
Columbus & Southern Ohio Electric Co.	255	37%	13,200	1.9
Consolidated Edison of New York	112	12%	16,800	2.1
Consumers Power Co. (Michigan)	1,650	22%	15,000	2.0
Detroit Edison Co.	2,725	25%	14,430	2.0
Duke Power Co. (N. Carolina)	2,885	65%	($160)	1.5
Georgia Power Co.	1,504	51%	14,240	1.6
Gulf Power Co. (Pensacola, Fla.)	650	23%	5,166	1.6
Hannibal, Mo. Board of Public Works	0	..	..	1.5
Hopkinsville, Ky. Electric Dept.	1,374	8%	14,000	0.7
Idaho Power Co.	519	51%	8,250	1.75
Indianapolis Power & Light Co.	1,660	30%	12,000	1.5
Interstate Power Co. (Dubuque, Iowa)	78	62%	10,500	2.0
Jersey Central Power & Light Co. New Jersey Power & Light Co.	469	70%	15,000	1.8
Kansas Gas & Electric Co.	359	37%	13,740	1.25
Lansing, Mich. Board of Water & Light	149	8%	14,400	1.25
Louisiana Power & Light Co. (New Orleans)	44	45%	3,900	1.5
Monongahela Power Co. (W. Virginia)	951	26%	($168)	1.4
Monroe, La. Utilities Comm.	0	..	..	1.5
Nashville Electric Service	44,000	9%	16,000	0.75
Okla. Gas & Electric Co. (Oklahoma City)	77	61%	9,000	1.0
Okla., Public Service Co. of (Tulsa)	90	39%	*22,000	1.0
Orlando (Fla.) Utilities Commission	..	..	*40,000	1.55
Ozarks Rural Electric Coop. Corp. (Fayetteville, Ark.)	35	43%	16,000	1.5
Pennsylvania Power & Light Co. (Allentown)	619	54%	14,000	2.0
Portland, Ore. General Electric Co.	32,000	12%	12–15,000	1.1
Potomac Edison Co. (Hagerstown, Md.)	114	100%	8–9,000	1.75
Potomac Electric Power Co. (Washington, D. C.)	136	23%	*12,000	1.8
Seattle Dept. of Lighting	22,157	18%	*26,600	1.1
Sierra Pacific Power Co. (Reno, Nev.)	..	..	..	2.0
South Carolina Electric & Gas Co. (Columbia)	589	20%	*15,670	1.25
Tampa Electric Co.	3,724	15%	3,500	1.7
Texas Electric Service Co. (Fort Worth)	6	0%	..	1.25
Toledo Edison Co.	353	8%	($220)	1.7
Union Electric Co. (St. Louis)	1,746	35%	*22,000	1.35
Virginia Electric & Power Co. (Richmond)	2,955	12%	..	1.5
West Penn Power Co. (Greensburg)	1,006	43%	*19,000	1.55



DUCT heater above and tempering heater at right. Heating element shown between them.

York Adds Duct Heater For Air Conditioner

YORK, Pa.—A new all electric duct heating system for use in residences in connection with a central air conditioning unit has been announced by the York Div. of Borg-Warner Corp.

The York electric heating system consists of electric duct heating units installed directly in the air distribution system using the air moving equipment of a self-contained or remote air conditioner for the distribution of the heated air.

The use of individual room duct heaters located immediately before the outlet diffuser in the room, and controlled in the room by a separate thermostat, allows for complete flexibility in meeting individual heating requirements and minimizes operating cost.

Another feature of the new system is a tempering heater located in the main duct at the fan outlet to take the chill out of the air going to spaces where there is no call for additional heating. An interlocking relay is included in the assembly to prevent operation of the tempering heaters while the cooling unit is in operation.

John Rose, merchandise manager for the duct heating system, listed its advantages as: individual room control, low voltage thermostat system, all air circulated and filtered, extremely low duct heat loss with units near outlet diffusers, and a single model for requirements ranging from 530 Btuh to 8,530 Btuh.

The new system is being marketed through York's nationwide distributors and their dealers in the heating and air conditioning field.

Frick Names Scott To Cleveland Post

WAYNESBORO, Pa.—The appointment of William Scott as sales engineer for the Cleveland office was made at the Frick Co. headquarters here.

Until his recent appointment, Scott was chief engineer for Lincoln & Lane in Providence, R. I. He was also chief engineer in marine refrigeration for the Bailey Refrigeration Co. in Brooklyn, and served as project engineer for a major manufacturer of air conditioning equipment.

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FHA Wants More Realistic Formula for Energy Use by Homes with Electric Heat

By Neal J. Hardy, Commissioner, Federal Housing Administration

The Federal Housing Administration is re-examining the formula it uses to estimate the annual energy consumed by electrically heated houses. Estimates obtained by using the present formula do not agree with the actual energy consumed in some areas.

The widespread use of air conditioning has increased the demand for electrical energy. In order to utilize this capacity during the winter, electric power companies are conducting programs to stimulate the installation of electric heat in houses.

This trend, of course, means increased competition between the two basic sources of energy —fossil fuel and electricity. Recognizing this, FHA will do everything within its power to establish standards which will provide more realistic estimates of actual energy consumed for home heating.

In October, 1959, based on earlier data collected and analyzed by FHA's Technical Studies staff, the FHA constant used in our Minimum Property Standards was revised.

This revision had the effect of adjusting the formula used to estimate the annual consumption in kilowatt hours and, in turn, opened our standards.

The data on which we based this revision were scattered and incomplete. However, the information was sufficient to justify the revision until such time as more adequate data became available to support a more realistic change in the factor affecting cost estimates.

FHA Neutral on Type Of Heat Used

FHA has no preference as to the type of heating facility used in the homes it insures. The agency's objective with respect to home heating is to assure the homeowner that the equipment and kind of energy used will operate economically and provide winter comfort with safety and convenience.

In many parts of the country where winters are long and severe, heating costs account for a sizable portion of the monthly housing expenses.

In processing an application for home mortgage insurance, the FHA estimates the home buyer's ability to make his mortgage payments and to meet the estimated costs of repairs, upkeep, and utilities — including heating.

Obviously, if our heating cost estimates are too high, the family with a fixed income is discouraged from buying a home. It is extremely important to the prospective buyer and to the home builder, that an FHA estimate reflect as nearly as possible the actual heating cost to the homeowner.

The 1959 revision of the FHA constant used in the formula to estimate energy consumption in electrically heated houses was based on data obtained from homes in the areas of 10 different FHA field offices.

These homes were located in California, Colorado, Florida, Georgia, Idaho, Kentucky, Michigan, Oregon, Tennessee, and Washington. The data which we received confirmed our doubts as to the adequacy of the formula.

The data reflected the heating habits of families in those states and our analysis of the data revealed the fact that the constant varies considerably. It varies not only between different regions of the country but even between adjoining households.

Discrepancies of as much as 200 to 300% were found between the estimates computed on the basis of the present formula and the actual costs experienced by homeowners. More often than not the formula estimate was too high.

The larger variations appear to result primarily from differing regional heating needs and individual heating habits. These factors, however, cannot be used as a variable in the formula due to the inability to judge human behavior in operating and utilizing heat-producing equipment in a home such as hot water heaters, ranges, electrical appliances, and auxiliary heating devices.

What New Formula Needs

Therefore, any new formula must have a set of constants which will reflect such variations. Other variables such as construction characteristics and types of heating systems, orientation and sun loads must be considered in making a realistic estimate of heating costs since they have an effect upon the value of the constant.

FHA is convinced that the present formula is inadequate. We know, too, that the problem of making realistic estimates of energy consumption in electrically heated homes is far more widespread than realized before.

We are confident, however, that with the assistance and cooperation of industry groups such as the American Institute of Electrical Engineers, the Edison Electric Institute, and the National Electrical Manufacturers Association, and the U. S. Weather Bureau, each of whom is aware of the problem, a new formula will be developed.

Then FHA will be able to more accurately estimate electrical energy consumption.

Stewart-Warner Gets Patent on Sequencer

LEBANON, Ind. — Stewart-Warner "Selective-Sequencer®" control for the Stewart-Warner "Electro-Flo" furnace has been granted U. S. Patent No. 2,993,-106, the Heating and Air Conditioning Div., Stewart-Warner Corp. has announced.

The Selective-Sequencer controls up to nine sheathed calrod heating elements and oscillates between whatever number of heat stages are necessary to produce a modulated supply of heat to exactly match the heat loss at any given hour of the day or night or in mild or cold weather.

The patented Sequencer also incorporates a built-in clutch which will drop out the heating elements in case of a power failure or excessive bonnet temperature.

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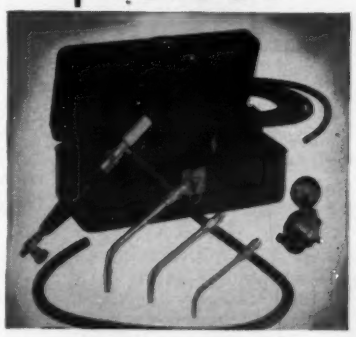

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Survey Shows Activities of 19 Dealers Who Have Put Electric Heat Systems Into 6,416 Residences

By C. Dale Mericle

DETROIT—Some interesting and perhaps significant data regarding activities of dealers promoting and selling electric heat has been developed by the NEWS through a survey of firms claiming a combined total of 6,416 electric home heating installations.

This total represents the complete electrically heated home installations of 19 dealers in various parts of the country. Supplemental installations are not supposed to be included.

Most of the results are presented in tabular form. One table is devoted to residential systems; the other shows data on the nine dealers who also make commercial and industrial installations of electric heat.

Some conclusions seem readily apparent from these figures:

- There's perhaps a bigger market in existing homes than in new homes.
- Average residential installation is about 10 to 12 kw in size.
- Average cost of installation per room is about $100.
- Materials account for better than 50% of the cost.
- A few ducted electric heat systems have been installed thus far. Five dealers reported such installations, in terms of percentage, which figures out to about 50 homes of the total of 6,416.

An effort was made in the NEWS survey to determine whether heating was the sole interest of the firms involved. Of those who answered this question, only one concentrated 100% on heating. The top three firms, in number of installations, indicated that heating represented 95%, 80%, and 75%, respectively, of their dollar volume.

Most firms, also, devoted all or the greater percentage of their efforts to the residential field. Ten firms did only residential, and activities in the commercial and industrial electric heating field represented from 2% to 50% of the heating volume of the other nine dealers.

Nearly twice as many installations by these dealers went into existing homes as in new homes. The totals were 2,352 new homes and 4,064 existing homes with complete rather than supplemental electric heating systems.

Balance in favor of existing homes was obviously swung by Contractor No. 1, who claims 500 new home jobs and 2,500 existing homes. This firm is not unique, however. No. 3 did 500 new, 700 existing; No. 4 did 280 new, 230 existing; No. 5 did only existing homes, 300 of them; No. 10 did 25 new, 200 existing; No. 16 did 3 new, 5 existing.

It would be foolhardy to suggest that the proportion of new to existing home installations of these 19 dealers represents the national picture (though it may), but these figures obviously do indicate that the electric heat market is not confined to new homes.

This shouldn't be surprising. There's rough competition in trying to sell the speculative builder. There's less competition, to a degree at least, in trying to sell owners of existing homes.

As for the average size of residential jobs installed by these dealers, it works out to between 10 and 12 kw. The overall range is considerable, though, extending from 2½ to 20 kw.

There's some question as to whether the 2½ kw cited by dealer No. 12 may not refer to supplemental heating installations, for the next lowest average size is 8 kw, cited by dealer No. 4.

Average cost per room of complete electric heat systems also covers a wide range—from $35 to $250. There is even considerable variation among the top five dealers: from $65-$80 cited by No. 3 to the $250 of dealer No. 5.

While six dealers figured average cost per room at less than $100, 10 dealers noted it at $100 or more.

Attempts were also made to determine the breakdown between cost of materials and cost of labor for these electric heat installations. As the table shows, costs of material run 50% or more, one dealer listing these costs at 80%.

(It will be noted that contractors No. 3, 5, and 16 have figured their combined costs of material and labor at less than 100% to allow for a profit margin. The other dealers, it is assumed, considered only costs in making the distinction.)

Answers to another survey question (not noted in the table) indicated that nine of these contractors also installed the insulation required for electric heat. Six firms sub-contracted the insulation work, but four did neither. The latter, whose installations had been limited almost exclusively to new homes, implied that the building contractor took care of the insulation.

The nine contractors who reported installations of electric heat for commercial and industrial applications claimed a total of 1,034 jobs between them. As shown in the second table, contractor No. 1 reported 150 such jobs; contractor No. 3, 800.

Average size of the jobs listed ranges from 3 to 40 kw, and the average cost per 1,000 sq ft of space heated varies from $125 to $1,000.

Obviously, commercial and industrial applications vary greatly in size, cost, etc., according to the specific application.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Table Discloses Data on Residential Electric Heat Jobs of 19 Dealers

Contractor	% of Dollar Volume Heating	Heating Res. (%)	Volume Com'l (%)	Electrically Heated Homes New	Electrically Heated Homes Exist.	Average Kw	Average Cost Per Room	Cost of Materials (%)	Cost of Labor (%)
1	95	75	25	500	2,500	10	$150	75	25
2	80	98	2	700	100	11	80	65	35
3	75	85	15	500	700	12	65–80	50	25
4	40	90	10	280	230	8	125	70	30
5	10	100	....	....	300	10	250	45	40
6	50	100	....	132	8	11	....	65	35
7	35	95	5	50	....	14	35	....	....
8	5	100	....	50	...	12	45	75	25
9	5	100	....	40	3	12	90	50	50
10	100	70	30	25	200	20	100	50	50
11	....	100	....	10	6	15	150	65	35
12	....	50	50	8	....	2½	70	70	30
13	10	50	50	12	10	15	100	80	20
14	10	100	....	12	....	....	100	....	....
15	....	100	....	14	1	....	....	....	....
16	....	50	50	3	5	18	100	60	20
17	....	100	....	7	....	16..5	125	....	....
18	....	100	....	5	....	12	150	50	50
19	....	100	....	4	1	....	....	....	....

Commercial Jobs of 9 Dealers

Contractor	No. Jobs	Average Size (Kw)	Average Cost/ 1,000 sq ft Space Heated	Cost of Materials (%)	Cost of Labor (%)
1*	150	12	$700	75	25
2	4	15	1,000	60	40
3	800	....	....	....	....
4	18	32	125	70	30
7	2	15	....	....	....
10	30	25	....	....	....
12	20	3	150	....	....
13	10	5	560	80	20
16	....	40	150	60	20

*Numbers refer to firms listed in table on residential installations.

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For remote Air Conditioning and Refrigeration Systems
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U.S. Patent No. 2,934,915
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Dedicated Salesman

Clement Stanford Is So Sure of His Electric Heat Installations He Guarantees Them for 15 Years

By Frank J. Versagi

INDIANAPOLIS — Twenty-five hundred electrically heated houses with equipment, including thermostats, guaranteed for 15 years. Acceptances even when he was underbid by $1,000. A visitor who traveled hundreds of miles to "meet a manufacturer who would refuse to sell me because I couldn't convince him over the phone that my insulation was just right, according to his standards."

These are some of the experiences of Clement Stanford, president of Electriliving Corp., a dynamic, outspoken man whose talk on electric heat before last month's Region V ASHRAE meeting raised so much excitement, as reported in the Oct. 23 issue of the NEWS.

Stanford is one of those dedicated men whose dedication so pervades all he does and says that it becomes impossible to write about his operation without bringing in the personal element. One need not, one cannot, agree with all that the Electriliving president believes, but it is as difficult to separate the man from his activities as it would be to separate well known Ray Edwards, of Edwards Engineers Corp., from his wheat germ oil!

The idea of guaranteeing his installation for 15 years is an indication of Stanford's dedication. He believes in his concept of electric heating, low-profile open radiation; he has great confidence in his techniques; he has what must be called a religious concern for his customers.

Does Own Insulation

Dissatisfied with conventionally available insulation materials and installation techniques, Stanford owns a captive insulation company. They have decided on a cellulose fiber material, heavily matted, through which they insist there is no blow-through.

Earl Roys, Stanford's superintendent of physical installations, showed the NEWS the van which houses a 17-hp blower and is large enough to contain insulation for a 1,500-sq ft house. "This size house becomes a one-trip job, accomplished in four hours," Roys explained.

While 70% of Electriliving's installations have been in existing homes, "we normally refuse to take on a house which has previously been insulated by someone else." Stanford reasons that he cannot guarantee operating costs, which he does as a normal thing, if he cannot be sure of the quality of the house insulation. When his company insulates an existing or new house, he can be sure of the quality and is therefore able to talk operating costs to the customer.

No Leak Too Small To Caulk

One of Stanford's dealers walked into the office during the NEWS interview. (Stanford trains his dealers till he is confident they will operate at the standards he has set.) The dealer was insulating a house and had found ¼-in. air space between the plates atop the studs. Such a potential air leak would normally not have been spotted, but the dealer had been on a ladder inspecting the construction when he saw that the plates had been pulled apart. The air gap was filled with caulking cotton.

This intense preoccupation with proper insulation causes Stanford to refuse to sell his equipment unless he can be certain of proper insulation. Coincidentally, several days before visiting Indianapolis, the NEWS had met an eastern contractor who had come to Columbus, Ohio, (the Region V ASHRAE meeting) with a puzzled mixture of irritation and admiration to meet the man who had refused to sell him.

It is Stanford's contention that a properly insulated house, with humidistatically controlled exhaust fans, can be electrically heated for less than the cost of heating with fossil fuels in many areas of the country. He likes to work with heat factors—a "common denominator" defined as "the annual kilowatt hours used divided by the number of degree days, divided by the cubic feet of heated area expressed in thousands."

He feels this gives the best method of checking operating costs, and insists that any heat factor greater than 0.25 is undesirable, no matter how low the utility rate. "We pretty consistently hit 0.20," Stanford says.

Users Are Happy

The NEWS accompanied Stanford on a tour of several of his electrically heated installations. The great majority of users were happy; we spent 45 minutes talking a 70-year-old couple out of installing a third exhaust fan for at least another winter (they had installed a new clothes dryer and were venting it to the crawl space). Stanford insisted that we talk to a couple people who were dissatisfied with electric heat, although these weren't his customers!

In nearby Franklin, Ind., we visited a Methodist home where Stanford has electrically heated every one of the private houses. Stanford had placed his open-face radiation along the outside walls; where heat loss called for more radiation in a room, he mounted it on the next coldest wall. It was here that Electriliving was awarded a job, even though they were underbid by $1,000.

Utilities Pushing Too Fast?

From other sources, the NEWS had heard complaints, warnings, that some manufacturers and utilities, in the enthusiasm for electric heat, were pushing it too fast. Stanford put it more forcefully, "There has always been a tendency, on the part of utilities, to treat customers as statistics."

"How else can be explain their willingness to work with the irresponsible mass builder, a man who by-passes everybody —wholesalers, dealers, contractors—in his attempt to get low prices?" he asked.

Most mass builders, he insists, are not at all concerned with the comfort or operating costs experienced by the end user.

Stanford wants his business to grow, he expects it to grow. "But if someone offered to loan me $1 million at no interest, I wouldn't take it. One of the greatest dangers for the small businessman is unbossed expansion. You can grow so fast you go broke."

No Squinting! No Guessing!

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Now the Magic Eye tells at a glance if there is moisture in a system and whether or not the system is fully charged.

New color coding appears blue when dry, pink when moisture is present. The word "FULL" appears plainly in black letters on a white background when the system is fully charged . . . disappears when refrigerant is low. The larger letters are easier to read—can be seen at a greater distance.

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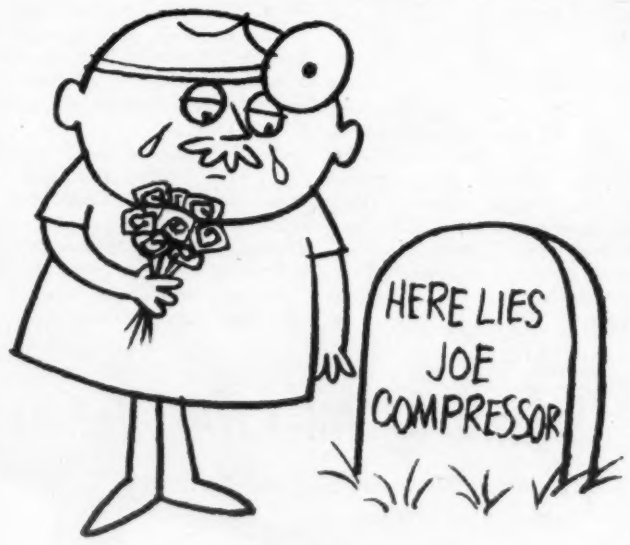

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RSES Convention A Success--

(Continued from Page 1, Col. 1)
were encouraged to make more visits to local chapters; more letters went directly to the chapters from the international office; more information about chapter and international activities was published in the society's official publication.

But communication must be a two-way affair, added McDermott. "Attend committee meetings, you delegates, and tell us what your members want and feel. An association can be no stronger than its grass roots level."

Suggest Correspondence Courses for Members-At-Large, Small Chapters

Darby, of Tacoma, Wash., suggested that RSES consider establishing a correspondence course for members at large, smaller chapters, and the Military. "Such a correspondence course can be supported by participating students," the past president said.

Darby also commented that all activities of the society will be consolidated in the Chicago office by December of this year. The educational office formerly maintained in Milwaukee will be moved to Chicago; Ralph Jansen, assistant educational director who operated the Milwaukee office, will also join the new education director, Dale Bodine, in Chicago.

In view of a floor fight which developed later in the convention, one of Darby's suggestions at the opening business session is of interest. Darby felt that in the interests of continuity of effort and of acknowledgement of merit, it would be effective to move officers up through the chairs, "providing the men have proved worthy."

Floor Fight on Nominations

During the election of officers later in the convention, however, two nominations from the floor, in opposition to the slate recommended by the society's nominating committee, caused a spirited discussion.

The composite picture presented by the several committee reports indicated the growing strength and influence of RSES, according to its officers.

Ralph Jansen reported that seven sections of RSES's Service Application Manual were sent to members during the past fiscal year; these sections comprised 108 pages. By June 30, 1961, there were 1,346 pages in SAM, Jansen reported. He indicated that the first term of the study course was completed by 56 chapters, with 935 members participating in the final examination. Frank J. Beninger, of the Niagara Frontier chapter, was the first individual ever to receive a grade of 100% in any of the study course examinations.

The second term of the study course was completed by 28 chapters, with 401 members taking the examination; third term was taken by 16 chapters with 195 members participating in the final examination.

"Thus far, 4,592 members participated in all three study courses," Jansen continued.

"The speaker's bank has grown tremendously; training aids from manufacturers are continuing to come in. We recommend that local chapters make more use of our speaker's bank and that those chapters which have difficulty obtaining speakers make use of the training aids available from the educational department," Jansen concluded.

As chairman of the membership committee, Howenstine reported that society membership now stands at 14,616, an increase of 1,982 over last year. The number of chapters is up from 241 to 263, an all-time high, according to Howenstine.

Cecil Visger, acting chairman of the educational and examining board, reported that the number of Certificate Members increased to the all-time high of 1,862, with 318 of these coming during the last year.

Ken Franklin, safety committee, stated that according to National Safety Council figures, 2,800 people were killed in accidental deaths in service industries; 470,000 were disabled for more than one day in the service industries, during the last recorded year.

"Safety may contribute as much to profit as other management activities," suggested Franklin. He cited figures which indicated that $33,000 in sales would be needed to make up a $1,000 injury loss in a company realizing a 3% profit on sales.

Report 19 Deaths In Abandoned Refrigerators

He reported that 17 deaths of children in abandoned refrigerators were reported through August, 1961; later during the convention, reports were received of two children who had just died in abandoned refrigerators.

Dale Bodine, the new education director, suggested that the society work at the local level to provide study courses in schools. "Tie such programs in with craft recognition activities," Bodine offered, after expressing his gratitude to the society for his appointment.

Mrs. Ruby Spence, widow of John Spence, former educational director, spoke briefly at the convention banquet. "I came to the convention because I could not stay home," Mrs. Spence said.

She read a letter from St. Louis Children's hospital which gratefully acknowledged gifts sent to the hospital by RSES members and which are to be used for incubators for ill infants. Each incubator will carry a plaque commemorating the donations in honor of John Spence.

William T. Smith, government relations committee, said, "It is almost impossible to conduct any business without some contact with Washington. The government relations committee can help greatly in making sure you get to the right guy."

Although no specific directives have been issued, according to Smith, RSES and its activity is being encouraged by the Military where military members are engaged in refrigeration and air conditioning service work, and government facilities are being made available for meetings. Smith reported that 50-75 members have formed a Washington chapter.

Distribute Awards

Under the toastmastering of Kenneth Wood, Toronto, general chairman of the convention, several awards were made at the annual banquet. The Paul B. Reed Memorial Award went to the Rockford, Ill. chapter for the greatest number of points based on increase in membership, low number of delinquent members, and participation in Certificate examinations.

The plaque and $100 which make up the McIntire Award were presented by the McIntire Co.'s president, J. G. Beierlein, to Kenneth Wood "for outstanding contributions to RSES and the industry which it serves."

A. E. Manning, past president, was elected to honorary membership in the society.

The Ontario Mapleleaf chapter made two awards to handicapped, blind, members engaged in service work. Receiving the awards: Sidney Hurd, employed by Canadian Westinghouse Co., Ltd., Hamilton, Ont., and a member of the Niagara Peninsular chapter; Frank Mayers, also of Hamilton, employed by Essex Packers, Ltd. Mayers also operates a part-time service business from his home.

The international rapport which existed during the Canadian-held convention made for several humorous moments in the convention. At the opening business session, for example, after the introductory and welcoming remarks, Paul Darby suggested that, since the major business program was about to begin, the guests who had greeted the convention might like to be excused.

Gets Elegant Heave-Ho

"I have never been thrown out more elegantly," acknowledged the Reverend Shaun Herron, of St. Columba United church.

In a more serious vein, C. M. Fleming, president of Canadian Refrigeration & Air Conditioning Assn., after his general introductory comments, said, "We are conscious of the leadership your country is giving the whole free world, and we're glad we're with you."

In addition to Howenstine, the following were elected to office during the 24th annual convention: 1st vice president, J. Lawrence Hall, Nashua, N. H.; 2nd vice president, Michael Rudka, Oshawa, Ont.; treasurer, Charles G. Bell, Fresno, Calif.; secretary, H. T. McDermott, Chicago; sergeant-at-arms, Robert M. Duke, San Antonio, Texas; chairman of the educational and examining board, Cecil Visger, Kansas City, Mo.

The convention voted to increase the number of directors from 10 to 12. Elected for a one-year term was director Gordon Brown, Portland, Ore.

Directors elected for two-year terms were J. D. Nall, Miami; A. J. Pike, St. John, N. B., Can.; K. E. Stookesberry, Inglewood, Calif.; Ralph E. Porter, Villa Park, Ill.; Leo Zolen, St. Paul, Minn.; and William Goeckel, Buffalo.

ARW To Push On Action--

(Continued from Page 1, Col. 4)
the Federal Trade Commission over the "OEM for resale" problem. At the recent board meeting it was reported that a mounting file of evidence indicates that the problem, as the supplies wholesalers see it, is continuing to grow more serious.

"Many OEM's who enjoy a price advantage on components over the wholesaler's cost are taking these components to the market place in competition with the wholesaler," said the report of the ARW Manufacturers Relations Committee. "We have on hand evidence to show that when we have called this to the attention of the component manufacturer, he assures us the situation will be cleaned up. But when we check later we find almost invariably that the practice has continued.

"It is the belief of our legal counsel, shared by the legal counsel of ARI, that when an OEM buys at the OEM price, which is usually substantially lower than the wholesaler cost, and in turn competes with the wholesaler in selling this component, then price discrimination takes place which is illegal."

Can't Expect Manufacturers To Police OEM Customers

The committee report then went on to say that while component manufacturers were probably sympathetic to the wholesaler viewpoints, it would be unrealistic to expect them to police the activities of their OEM customers.

Type of evidence needed for legal action, says the committee, is primarily proof that the OEM is not incorporating purchased components in the product he is manufacturing, but is in fact, selling these components alone to the trade levels which the wholesaler is selling.

Another area of activity on which ARW should place increased emphasis, the directors decreed, was in the area of trade relations with customer groups —contractors specifically. From Executive Vice President Thom Muir, who had spoken recently before both RACCA and NCRSA groups, they heard these comments:

Contractors Need Wholesalers, But--

"Without exception, contractors, when asked 'Do you need the wholesaler?' answered 'Yes' but some of their other comments were almost shocking. They complained that some wholesalers don't stock what they need, and that they and their employes don't know products and don't know what's happening in the industry; and some complained that the wholesalers were selling their (the contractor's) customers direct."

To improve trade relations, the board suggested that each wholesaler get his staff together to review the basic reasons for the wholesaler's existence and to develop a greater awareness of the services the wholesaler should perform; that management make personal calls on the trade; and to participate in various local meetings of trade groups.

In other areas of trade relations, wholesalers were urged to ask supplier manufacturers who they found selling direct to the trade why they followed such a course of action. In the matter of transhipping of products to unauthorized wholesalers, the national office was directed to prepare a resolution for member vote, condemning this as an unethical and damaging practice.

Act To Put More Meaning In Association Activities

In line with President E. P. Sorensen's call for ARW to take on a "Professional Look" the board took a number of other actions designed to provide more services and put more meaning into association activities for the individual members. Included in this are:

A proposed professional sales training program for wholesalers and their personnel, directed by Edlund & Associates of New York City. A presentation on a 7-months' training program will be presented to the membership. Enthusiasm for the program was high among those who were present at the board meeting.

An enlargement of the present Statistical Interchange program to cover many more phases of the wholesaler's sales and business operations. A gradual approach to extending the program was recommended, but the utimate goal is to develop figures as complete as those obtained by a similar activity among wholesalers in other fields.

Develop New Format For '62 Directory

Development of a new and unusual format is planned for the 1962 membership directory, which will be used as the association's prime promotional effort for the year.

In a report on a two-year summary of action by the national office, Muir said that the number of memberships had increased over 40% with the growth in total number of locations represented jumping from 364 to 530. For 1961, an objective of 11 new dues-paying members had been established. As of the date of the October directors meeting, 18 new members have been accepted in 1961, with one additional application awaiting official action.

One of the significant steps made in the past year, it was pointed out, was the affiliation with the Canadian Refrigeration & Air Conditioning Wholesalers, representing 15 main store locations with an over-all total of 33 locations.

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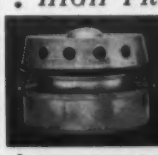

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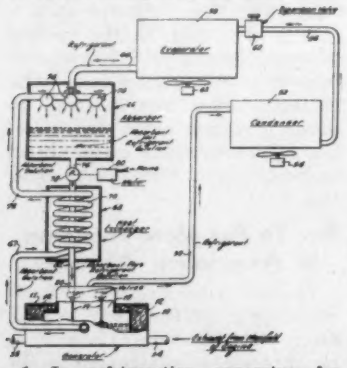
PATENTS

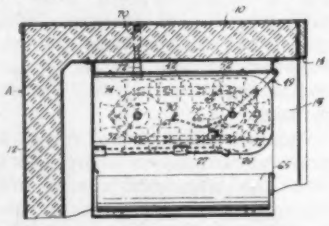
Week of July 4 (continued)

2,990,694. REFRIGERATION APPARATUS. Carl K. Kummerlowe, 7301 E. Granada Rd., Scottsdale, Ariz., and Joseph E. Batie, 5707 N. 18th Place, Phoenix, Ariz., assignors of one-third to Frank Bruce, Gardena, Calif.



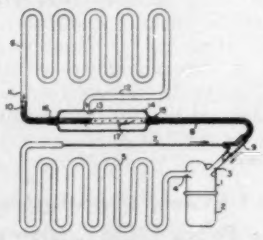
1. In refrigeration apparatus for use in conjunction with an engine having means for exhausting hot gases therefrom, the combination of: a muffler-generator unit including a housing, sound-absorbing material disposed within the housing, an inlet pipe for the muffler-generator unit extending into the housing adapted to be coupled to the exhaust means of the engine and including a perforated portion disposed within the housing for introducing hot exhaust gases into the housing, an outlet pipe for the muffler-generator unit extending into the housing including a perforated portion disposed within the housing in spaced relationship with the perforated portion of the inlet pipe for receiving the hot exhaust gases from the same, and a solution tank supported in the housing in heat-exchanging relationship with the hot gases passing from the inlet pipe to the outlet pipe. . . .

2,990,697. CONTINUOUS BELT TYPE ICE CUBE MAKER. Edmund J. Buzicky, St. Paul, Minn., assignor to Whirlpool Corp.



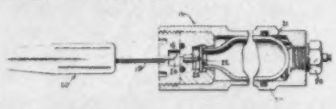
1. An ice cube maker including a plurality of rows of cups, the cups of each row being connected for movement in unison, pivots connected to the cups of each row to project outwardly therefrom, links connecting said pivots of one row to the pivots of the next adjacent rows to provide an endless conveyor, parallel shafts supported in a common substantially horizontal plane, sprockets on said shafts engageable with said pivots to support said conveyor, and means on said cups engageable with said links to hold the cups from pivoting relative to said links.

2,990,698. REFRIGERATION APPARATUS. Frank P. Crotser, Adrian, Mich., assignor to Revco, Inc., Deerfield, Mich.



1. In refrigerating apparatus the combination of an accumulator; a suction pipe, a capillary tube, and an evaporator coil; said accumulator comprising an elongated shell, said shell being generally cylindrical and being positioned in said apparatus with its major axis substantially horizontal, said suction pipe entering said shell through a nipple projecting from one end of said shell near the top thereof, said suction pipe protruding from the other end of said shell through a second nipple projecting from the other end of said shell near the top thereof....

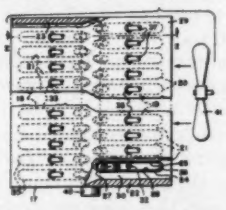
2,990,699. COOLING APPARATUS. David H. Dennis, Short Hills, N. J., assignor to Specialties Development Corp., Belleville, N. J.



1. In apparatus for maintaining an element at a much lower temperature than the ambient temperature, the combination of an element to be cooled, means providing a chamber having a wall adjacent said element, flow conducting means including capillary tubing having an inlet at one end adapted for connection to a source of high pressure expandable fluid material and having an outlet nozzle at its other end for directing the fluid material into said chamber in the vicinity of said wall and causing the same to expand and to be at least partially converted to its solid phase and thereby cool said element, passageway means extending from said chamber to the atmosphere for causing expanded cold gaseous fluid material to flow in regenerative heat exchange relation with the incoming fluid material in said flow conducting tubing, and a heat conducting wire having one end at the zone in said chamber in heat conducting connection with said flow conducting means adjacent to where the fluid material is converted to its solid phase and having its other end disposed externally of said chamber whereby heat thereto is supplied thereto and is conducted to the solid phase material at said outlet nozzle.

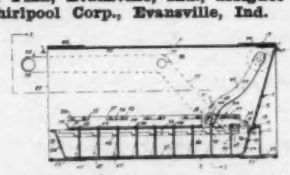
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

2,990,700. AIRFOIL EVAPORATOR WITH LIQUID DISTRIBUTOR MEANS. Bayard E. Weibert Jr., P.O. Box 1636, Farmington, N. M.



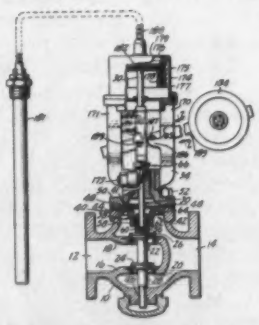
1. An evaporator comprising a plurality of elongated normally vertical hollow bodies of airfoil shape in cross section, lower and upper spaced common end walls between which said elongated hollow bodies extend and are fixed in spaced parallel relation, said lower end wall being provided with fluid outlets each for a different one of said hollow bodies, a plurality of liquid distributor tubes each having an inlet end portion for receiving liquid refrigerant, means fixing said tubes in central longitudinal relation each in a different one of said elongated hollow bodies with their inlet end portions extending through said upper end wall, said tubes having perforations spaced to spray liquid refrigerant onto the inside surfaces of said hollow bodies, and headers one connected to said outlets and another to said inlet end portions.

2,990,701. ICE CUBE SHUCKING AND LIFTING MECHANISM. Robert W. Fink, Evansville, Ind., assignor to Whirlpool Corp., Evansville, Ind.



1. In an ice cube shucking and lifting mechanism, the combination of a housing having a pair of parallel side walls carried by bottom and top walls, forming a substantially rectangular opening at one end, an actuating lever assembly comprising a transvers handle at one end, said handle being carried by a pair of longitudinally extending legs having a horizontal portion and a downwardly extending diagonal portion, the said legs being each pivotally mounted on said side walls on the outside thereof, said diagonal portion being provided at its lower end with a longitudinally extending elongated aperture. . . .

2,990,721. TEMPERATURE REGULATOR. Paulsen Spence, P.O. Box 77, Baton Rouge, La.



In a valve of the character indicated, a valve body, a valve actuating rod projecting from said body, a yoke carried by said body, fluid pressure actuating means carried by said yoke and connected to said valve actuator rod for moving the latter in one direction, said yoke comprising a pair of upright spaced apart legs at opposite sides of said valve actuating rod so as to define two access openings for direct access to said rod between said legs, each of said yoke legs having vertically elongated openings so that a lever can move vertically in each opening when pivoted at a point between the yoke legs, a lever passing through both said openings. . . .

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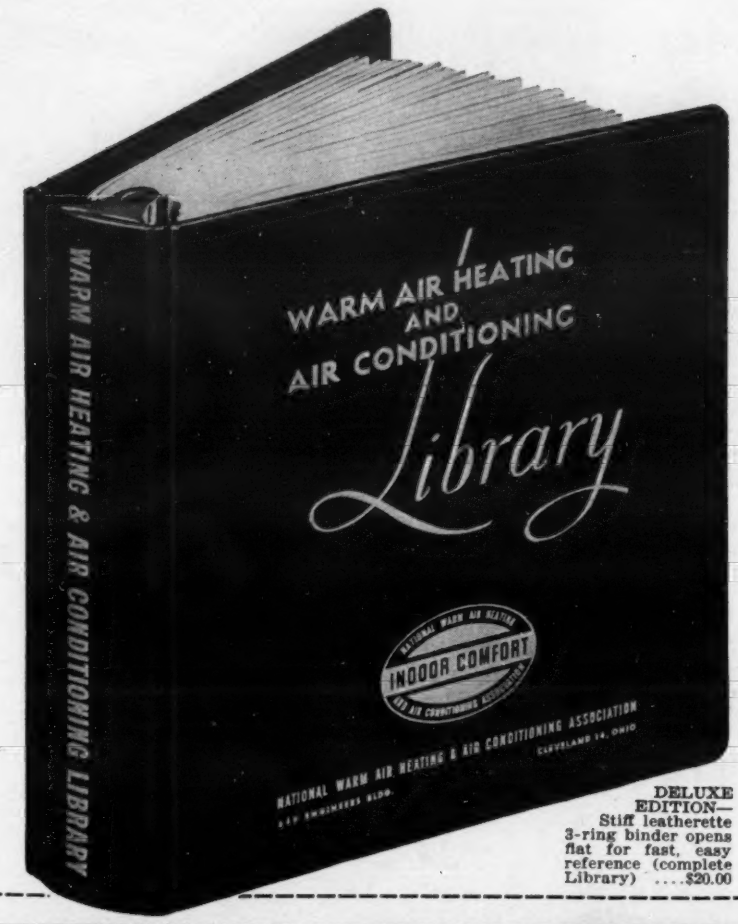
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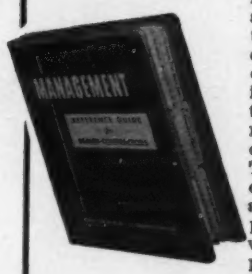

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AIR CONDITIONING HEATING & REFRIGERATION NEWS
The Newspaper of the Industry

Commonwealth Edison Pledges Support for Contractors Selling Ducted Electric Heat

CHICAGO—A pledge of its support and cooperation for heating and air conditioning dealer-contractors who have an interest in the sale and installation of ducted electric heating, was made before a mass meeting of Chicago suburban area dealers held earlier this fall by Commonwealth Edison Co., one of the nation's largest electric utility firms.

"We have been aware that our development program in electric heating has lacked the benefit of your skills," declared A. J. Moore, division vice president of the utility, "but only our allied manufacturers in the electric industry had the equipment ready when we first invaded the heating market. Today you have it also. So it's time we get together and see how we can work together in developing still further this exciting new market."

Electric Heating Moving North

Electric heating, once concentrated in southern areas, is rapidly moving north, said Moore, pointing out that in 1956, more than 65% of all electric heating was in the South; today it is only 52%.

Surveys indicated that whereas the Midwest had only 5% of the market in 1956, projected figures call for it to be getting 24% in 1965. Also, where the electrical contractor once sold almost all of the jobs, during the past year he sold only 52% of the total, and in the previous year had sold 58%.

Also speaking on the program was Robert L. Kopel, who pointed out that "many of today's heating systems are old and will need replacement soon. Electric heat can provide an economical replacement system. Shortly we will announce the details of a new incentive program to aid you in selling electric heat for conversion jobs."

Some 4,000 on Lines

Kopel also showed slides depicting some of the 4,000 electric space heating installations on Commonwealth Edison's lines. Among these was a home in Aurora, Ill., formerly heated with oil, converted to electric heat, with annual heating cost just under $250 per year.

A tract of all-electric 2,000-sq ft homes in Elgin, Ill., has averaged $23 a month on heating costs. With new rate reductions, cost of electric space heating on Commonwealth Edison lines is now 1.6 cents per kwh.

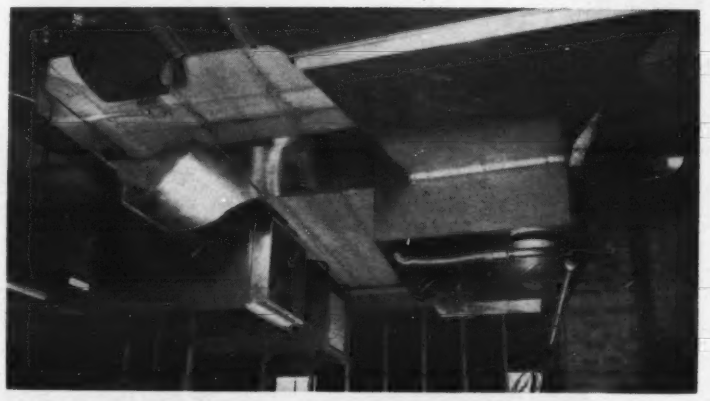
Following the speeches a panel composed of Moore; J. A. Pape, product supervisor, electric space heating; J. C. Leach, director technical services; and P. K. Colvert, space heating representative, answered questions for nearly an hour.

One question that seemed to draw considerable interest was what the utility had to offer in the event that there was a power failure lasting longer than one-half hour.

While declaring that such a possibility is remote, the utility officials said that Commonwealth Edison Co. stands ready to deliver portable heaters to users of electric heat who would need some form of heat during a power failure.

While standards for insulation in new homes are now pretty well accepted, the question was raised as to what to do in existing home installations.

The suggestion was made that it is desirable to get as much insulation as possible in the ceiling and under the roof, and under floors, and to seal the home as tightly as possible.



THREE CEILING-MOUNTED Mueller electric furnaces are used in combination with central air conditioners to provide zone-controlled comfort in this Barrington, Ill. home.

NAHB Show--

(Continued from Page 1, Col. 3)

air conditioning for 30% of new homes built in the Wilmington area during the past summer, will be demonstrated in an exhibit sponsored by the Air-Conditioning & Refrigeration Institute.

The ARI exhibit will feature reports from builders and publications telling how the project was operated and urging that the lessons learned be applied in other cities.

Nine hydronics heating equipment manufacturers will team up with the Better Heating-Cooling Council in a single 100-ft-long exhibit to emphasize the hydronics industry's drive to capture a larger share of the new house market.

In all, some 550 exhibits of home building materials and equipment will be on display during the exposition. Some 36 individual program events have been scheduled for the convention sessions, which will constitute a professional short course in home building.

Vice President Lyndon Johnson and Frederick H. Boland, immediate past president of the United Nations General Assembly and permanent Irish representative to the United

DUAL-DRY Evaporative Condenser

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Because the pump and water piping as well as the fans and fan motor are all factory installed within the dry casing the contractor saves installation time and money.

This fine unit incorporates many other superior features:

- Pump and water piping, fans, fan motor and drive are factory assembled within the casing. Thus, installation costs are minimized, protection provided for long service-free life.
- Coils are all prime surface copper. Eliminators and water piping are plastic.
- Dual casing and sound absorbing qualities of molded fiberglass provide unusually quiet operation.
- No steel in contact with the water in any part of the unit.

Capacities range from 10 to 100 tons.

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